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al-Sultānīyyā

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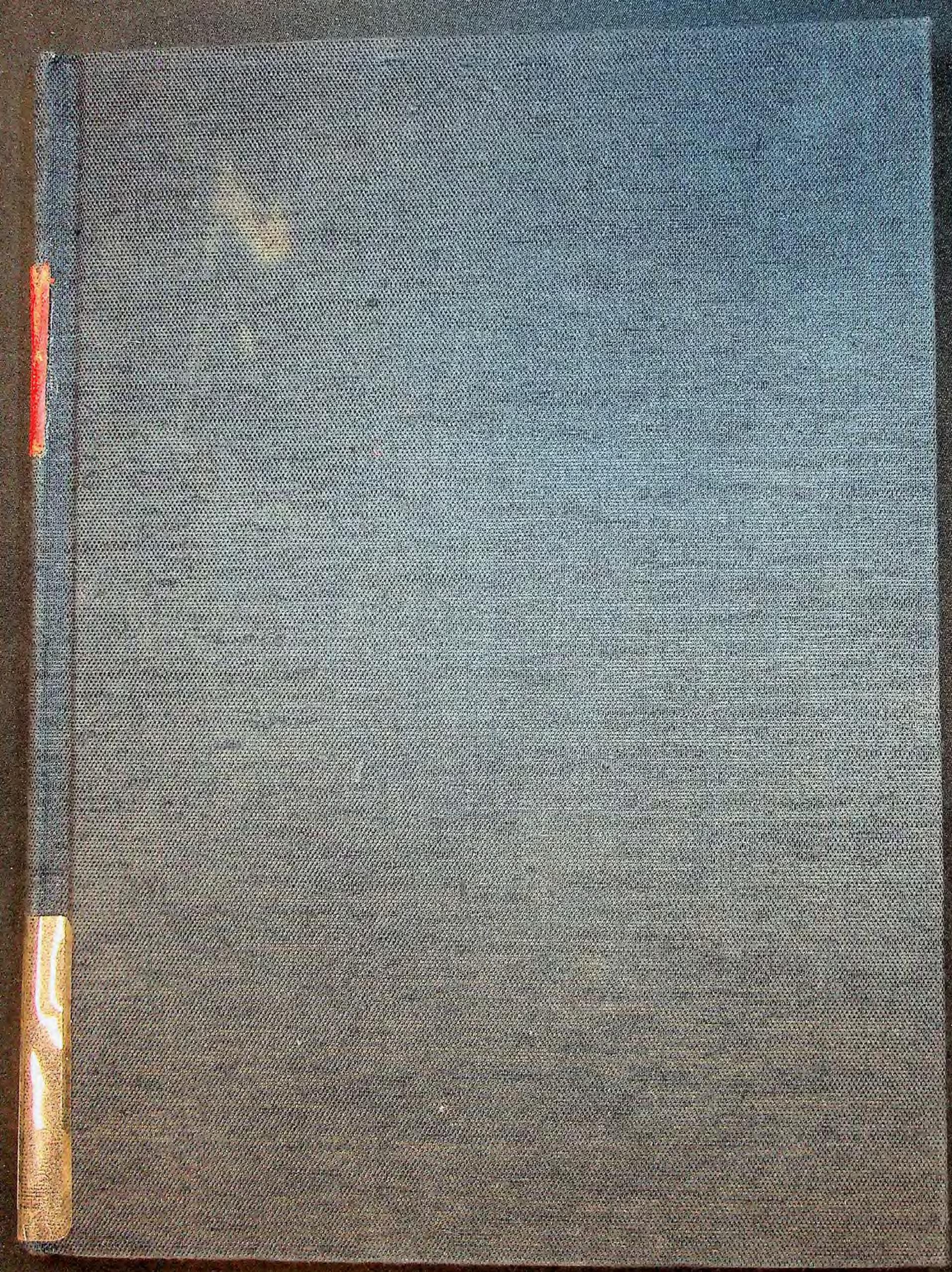
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thesis

1972/218

AL - SULTĀNIYYĀ

by

FARIDA MAKAR

K-TV

A THESIS SUBMITTED TO THE FACULTY
OF THE CENTER FOR ARABIC STUDIES
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THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

DEPARTMENT OF ARABIC STUDIES

JANUARY 1972.

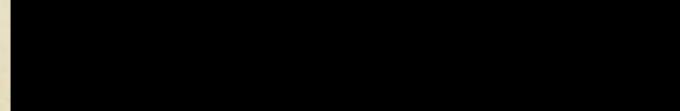
This Thesis for the Master of Arts Degree

By

Farida Makar

has been approved

January 22, 1972



Chairman, Thesis Committee



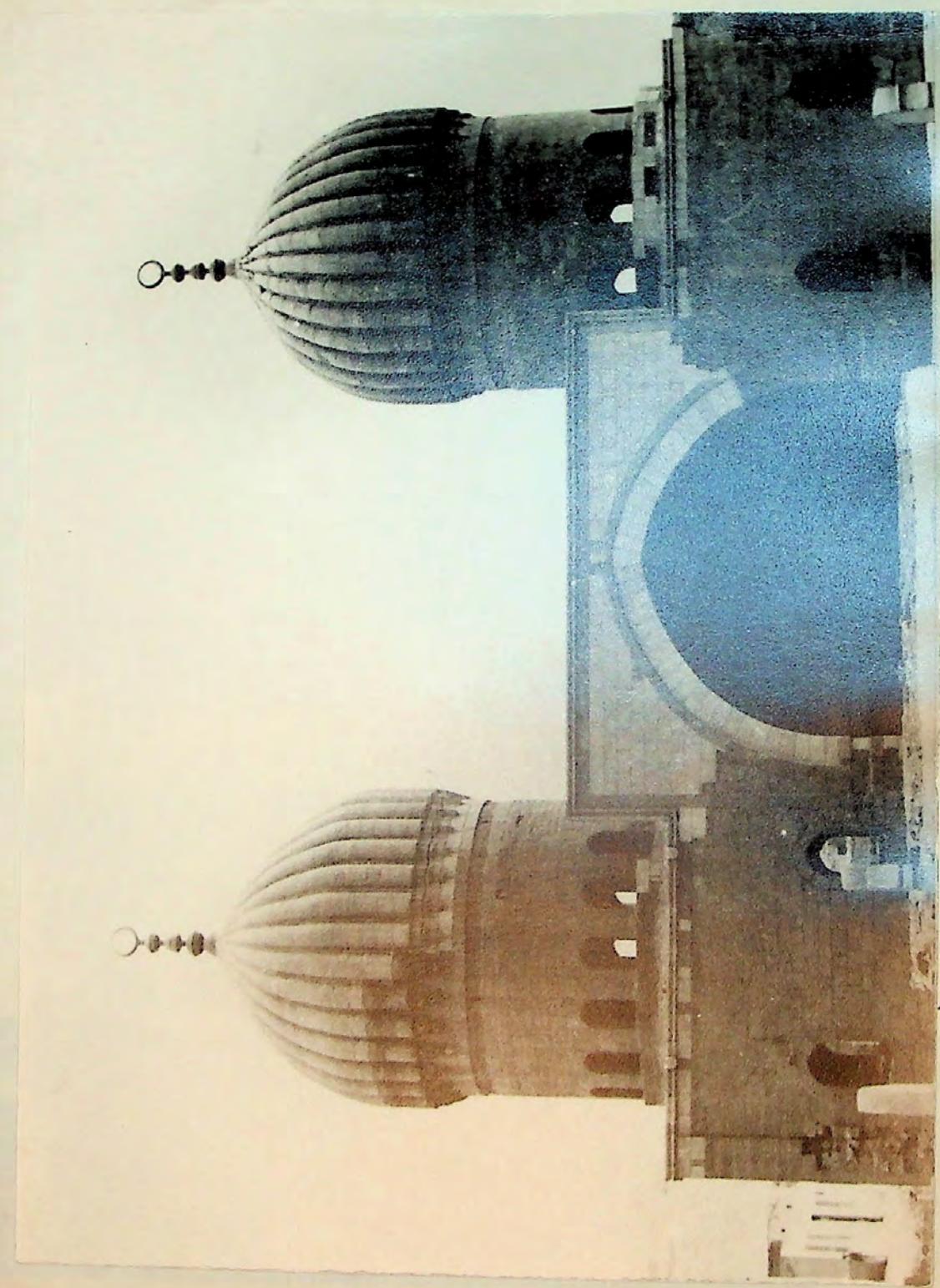
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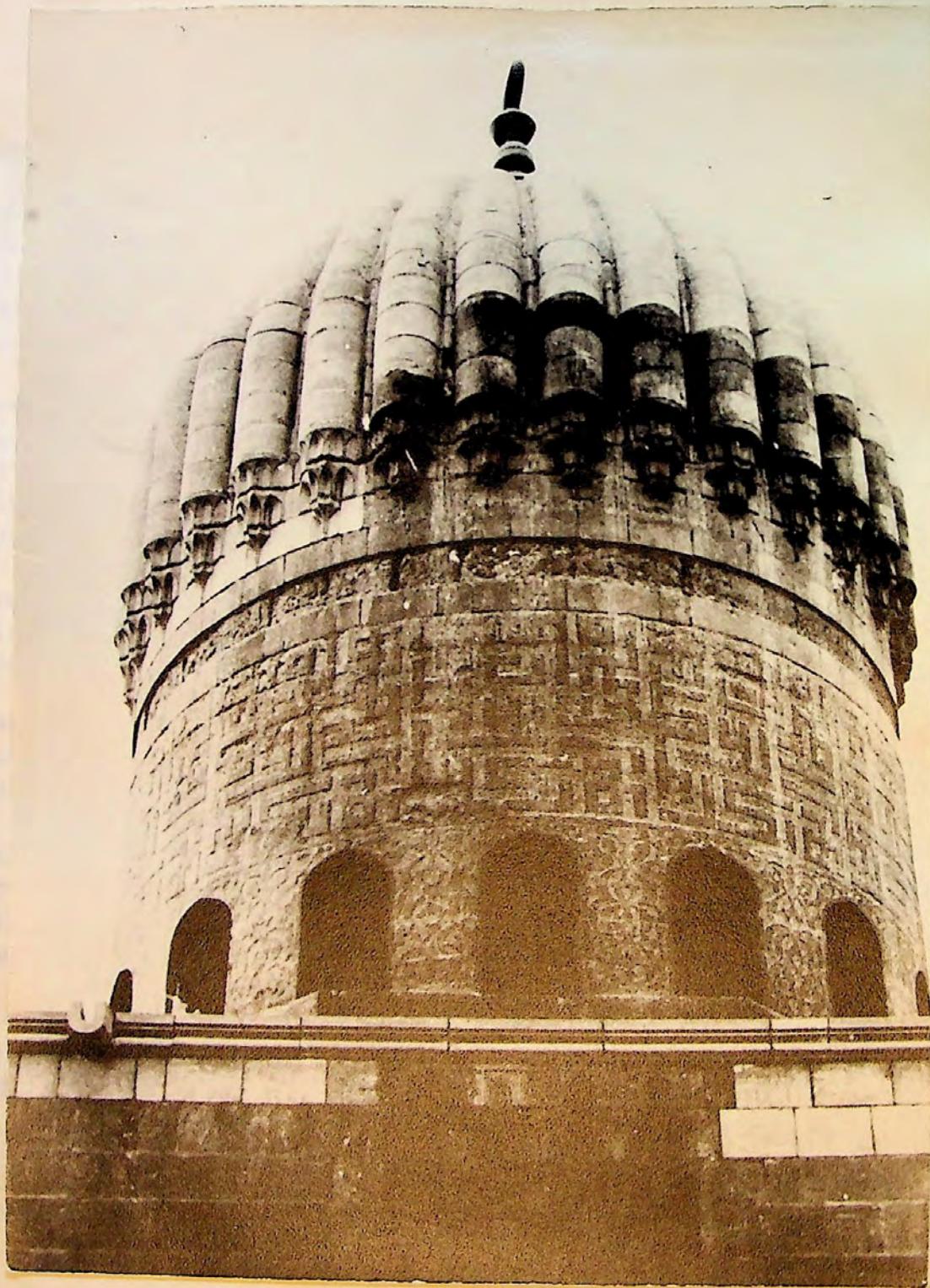


Reader, Thesis Committee



Chairman, Department of Arabic Studies





ACKNOWLEDGMENTS

I wish to express my gratitude to Professor Creswell who laid the foundation for the study of Islamic Art and Architecture in Egypt; and who with perseverance built up this invaluable research Library. His own publications have been an inspiring example for the handling of difficult archeological and architectural problems.

My grateful thanks to Dr. Christel Kessler who has advised me in the choice of the subject and provided me with the ground plan for al-Sultāniyyā. She also kindly allowed me to use the photographic material she personally collected and organized.

To Professor Michael Rogers I owe the review of an earlier draft and many pertinent suggestions as well as the bibliography related to Persia and Central Asia.

My heartfelt thanks go to Eleonore Fernandez for very patiently going through the entire manuscript with stimulating criticisms.

Thanks also to 'Esmat 'Allouba who has helped me in the understanding and the identification of the inscriptions. She also advised me in the analysis and description of the most complex floral motifs.

Most of the illustrations in the manuscript I have taken, except the photographs of al-Sultāniyyā and Yunūs al-Dawadār for which I am indebted to Manuel Keene.

To most of my colleagues in the Department of Islamic Art and Architecture who have offered help and friendship, I here dedicate my grateful thoughts.

ABSTRACT

The subject matter of this thesis is an attempt to solve the numerous problems raised by al-Sultāniyyā, a monument located at the foot of the Citadel in the Qarafā al-Kubrā. It consists of a twin double dome flanking an iwān and a now free-standing minaret.

The main problems raised by this enigmatic building are that it is undated, its ownership is not known and its architectural features seem at first sight to be very unusual or even, for some of them, unique in Cairene architecture.

All the inscriptions on this building are Qur'ānic and do not indicate either the name of the founder, the dating of the building or the purpose of the foundation.

There is no reference to this construction in the historical sources covering the Mamlūk period; al-Maqrīzī, Ibn Iyās, Taghri Bardi and 'Alī Moubārak do not mention it.

The only mention of it occurs rather late, in the Waqfeyya of Messih Pāshā - dated 1660- which determines its exact location and attributes it to the Mother of Sultān Hasan.

Creswell, in 1919 rejected this attribution on the basis that the architectural features do not fit with such an early dating and chose to date al-Sultāniyyā to the second quarter of the XVth c.

These are the given elements, apart from Creswell's partial analysis, very little has been written about al-Sultāniyyā and the problems remain unsolved.

At present some of the solutions can only be reached through a careful study of the given architectural elements.

The name of the founder remains unknown, but I prove in the course of this paper that none of the architectural elements considered by Creswell as arguments to refute a XIVth century dating stand in the face of more recent research; and I choose to retain the popular attribution to the Mother of Sultān Hasan until further research brings up a waqf deed with the undeniable identity of the founder.

As for the function, I believe that this building was a khanqāh since in Cairo, when in the city twin dome constructions are associated with madrasas, but when in the cemeteries they are associated with khanqāhs; the rooms on the SW side were probably used as cells.

The main contribution of this paper is the dating of this building within a four year period, namely between 1356 and 1360 placing al-Sultāniyyā in the architectural context of Cairene Mamlūk monuments comparing and contrasting its features, usual and unusual, with similar ones in dated buildings.

This dating is based on a comparative study of the following structural and decorative elements:

A- The ribbed stone domes: the period during which this type exists multifariously and with a high degree of inventiveness is limited between 1346 and 1382.

B- The lay-out: is characteristically of Anatolian influence which is at its strongest in Cairo between 1356 and 1362.

C- The decorative features:

(1) Square Kufi: each square element of the square kufi band around the cylindrical drum of the northern dome of al-Sultāniyyā is identical to the square panel above the left side niche of the Porch of the Madrasa of Sultān Ḥasan (1356-62).

(2) The Foliate Motifs: this fashion starts in 1349 and ends before 1368/9.

D- The Minaret: is the most securely datable element because it reflects a short lived fashion starting in 1349 and ending in 1360.

Thus al-Sultāniyyā should be placed between 1356 and 1360.

Al-Sultāniyyā presents common features with the Madrasa of Sultān Ḥasan (1356-62):

(a) The mihrāb of the iwān of al-Sultāniyyā is inspired from the side niches of the porch of the Madrasa.

(b) The arrangement and text of the Square kufī panel around the cylindrical drum of the northern dome is identical to that on the marble panel above the left side niche of the Porch. These common two unique features seem to indicate that they were the achievement of the same mind or group of craftsmen; the more so since they chronologically belong to the same period.

The Sultānīyyā with its two domes crowning high cylindrical drums of a very fine esthetic effect was indeed a provocative and successful architectural achievement both from the structural point of view and from the esthetic one. It is an extension of the imaginative impetus, characteristic of Sultān Hasan's Madrasa.

C O N T E N T S

ACKNOWLEDGMENT

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A. Present State

B. Plan:

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- (1) Square Kufī
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INTRODUCTION

The "Sultāniyyā" has two Index numbers 288 and 289. In the early years the minaret was considered as a separate building (see Comité 1894, 1895, 1896, 1902), and called "le Minaret du Nord". Later on, as in the Index to Mohammedan Monuments in Cairo, Survey of Egypt 1951, the twin domes and the minaret are considered as two parts of the same building, each one keeping its Index number, as on the Map of 1948. But the two elements are indicated as one monument on the 1938 plan of the minaret drawn under the sponsorship of the Comité de la Conservation des Monuments Arabes as part of a projected restoration of the minaret belonging to the "Turbā al-Sultāniyyā", called here, in between parenthesis and for the first time Khawand Samrā (خواند سمراء). This is the first appearance of this name; the previous plan, in the files of the Antiquity Department, of the two domes and iwān made in 1936 gives no mention of such a name, and does not consider the minaret as part of the Sultāniyyā at all.

The complex is located at the foot of the Citadel in the area called al Qarāfā al-Kubrā. It is called al-Sultāniyyā from a reference in the Waqffyyā of Messīh Pāshā (dated 1071 H : 1660 A.D.) which describes it as the Madrasa of Umm al-Sultān Ḥasan known as the Madrasa al-Sultāniyyā. Up to the present this is the only known reference in the literary sources to this building.

The building in its present state consists of two domes symmetrically flanking an iwān with the remains of a pishtaq facade roofed with a domical vault. 25 meters to the NW of this structure there is a minaret which is free standing.

The main problems raised by this building are basically that it is undated and that the person who sponsored its construction is not known. The feminine ending of al-Sultāniyyā indicates either a reference to the institution (e.g. al Madrasa al-Sultāniyyā, al Turbā al-Sultāniyyā...) or to a person, in which case the builder could have

been either the mother or the wife of a Sultān. It is traditionally attributed to the mother of Sultān Hasan; but Creswell in his Brief Chronology rejects this attribution and dates it rather to the second quarter of the XV th century.⁽¹⁾ Wiet in "Les Mosquées du Caire" dates it to about 1440.⁽²⁾ Both are in opposition to the dating of the Index which places the Sultāniyyā Mausoleum and Minaret in the XIV th century at the end of the Bahri Mamlūk period. The present study will attempt to demonstrate that the Index dating of the complex, though rather to the mid XIV th century than to the end, is the correct one.

It has been impossible until now to determine for whom this imposing complex was erected. There are no historical inscriptions on the parts of the building still standing and no reference to it as "al-Sultāniyyā" in the historical sources. I have consulted Maqrīzī, Ibn Iyās, Taghribirdī, 'Ali Moubārak, but have been unable to find the name. I therefore could not search for the Waqfīyyā or for a precise historical reference stating the name of the builder and the date of the construction.

A further problem is the purpose and function of the building. Was it a madrasa as it is stated in the Waqfīyyā of Messīh Pāshā p. 42 and a turbā (stated p. 48) ? Or was it a turbā and a khanqah which is more in line with Cemetery Architecture ? To my knowledge examples of madrasas built in cemeteries are rare and late (e.g. Ināl, 1451/56). What is usually built in cemeteries are Mosques, Khanqahs, Ribāts, Sabil-Kutabs or merely Mausoleums or Turbes in Hoshes.

Problems of a different order are the architectural ones. Al-Sultāniyyā is an unusual building in many respects. Creswell himself recognises it "when one comes to examine its architectural features one is surprised to find many of them unique, or almost unique in Egypt, which adds to the difficulty of dating it."⁽³⁾

⁽¹⁾ p. 129.

⁽²⁾ pp. 314, 318, 319, 323, 326.

⁽³⁾ Brief Chronology, p.128.

The architectural and decorative features which are certainly not common in the Mamlūk architecture of Cairo are the double dome (there are two domes, an outer one which is high with a curve of more than a hemisphere, and an inner one which is more shallow, a little less than a hemisphere); the high drum ; the stalactite corbelling at the base of each of the ribs of the outer dome; the square kūfi band around the cylindrical drum of the northern dome; the low-carved floral motifs.

Part I of this thesis will describe the Sultāniyyā in its present state, comparing each described feature with dated relevant buildings. This part also comprises a description of the unfinished aspect of the complex, the restoration which has been carried on it and the presentation of an attempted reconstruction. The last section will deal with inscriptions in relation both to content and decorative aspects.

The inscriptions on this building are solely Qur'ānic and do not give either a date or the purpose of the building. Part II, a search for these in the available historical and literary evidence is inconclusive.

Having found nothing definite in the Arabic and European sources, I turn in Part III to the existing architectural evidence. From a careful study of the architectural features - relating them to pre-existing local ones and comparing them to dated buildings in Cairene Mamlūk architecture - I shall attempt to deduce an approximate dating of the whole complex.

PART I : THE PRESENT STATE OF THE
SULTANIYYA COMPLEX.

A. PRESENT STATE :

The main part of the monument called on the Map al-Sultāniyyā⁽¹⁾ (Index number 288) is a complex formed of an iwān flanked by two domes, one decorated and one apparently incomplete.

At present, one enters the complex on the NE side through the northern dome, by means of what was originally a window, now at ground level and used as a door. A door on the same axis as this entrance gives access to the central iwān.

The iwān is now partly inhabited: a small room; leaning against the right wall of the iwān, occupies a little more than half its area, and blocks the passage to the courtyard. It is built out of squared stone from the original building. At the NE of this room, in the empty space, there is a modern tomb.

The door from the iwān into the southern dome has been blocked. The southern dome can now only be reached from another section of the former courtyard, now covered by new tombs and funerary stelae. The present entrance to this dome was originally a window.

B. PLAN.

(1) IWĀN FLANKED BY TWO DOMES:
-a- Measurements:⁽²⁾

The measurements of the domes are as follows: Exterioly, each domed chamber is 8 m 52 cm. square. Interiorly, the distance between the walls is 5 m 70 cm. All the walls have the same thickness of 1m41 cm. The window and door openings are 1m 20 cm wide, the height of the windows on the side and rear facade being 1m 74 cm. Each of the

⁽¹⁾ Established in 1948 by the Survey Department.

⁽²⁾ The Plan was drawn in 1936 by the Comité de la Conservation des Monuments Arabes as part of a projected restoration of the northern dome and the iwān of the Sultāniyyā mausoleum situated in the Siyūti Cemetery. It is in the files of the Antiquity Department.

two doors leading to the sahn (now blocked) was 1 m 06 wide on the exterior; the interior width is equal to 1 m 20, that of all the other openings.

The dimensions of the iwān are 7m 15 by 8m52, not taking into account the projection of the mihrāb on the rear facade which is 65 cm deep and 2m 65 wide.

The orientation of the three mihrābs was found to be approximately 123 °, while the correct Mecca orientation should be 135 °. The diversion is thus of 12 °.

The distance between the two domed structure and the now free standing minaret is 25 m 10.

One may deduce from the ground plan ⁽¹⁾ that these are twin domes with equal measurements and identical plans, dimensions and number of windows and of doors.

In the southern dome, the two windows on the SW wall are blind, because they were not on an exterior wall of the building, but on a wall which adjoined other constructions, possibly the cells of a khanqah.

Each of these square chambers had two doors, one on the axis of the mihrāb and one opening onto the central iwān.

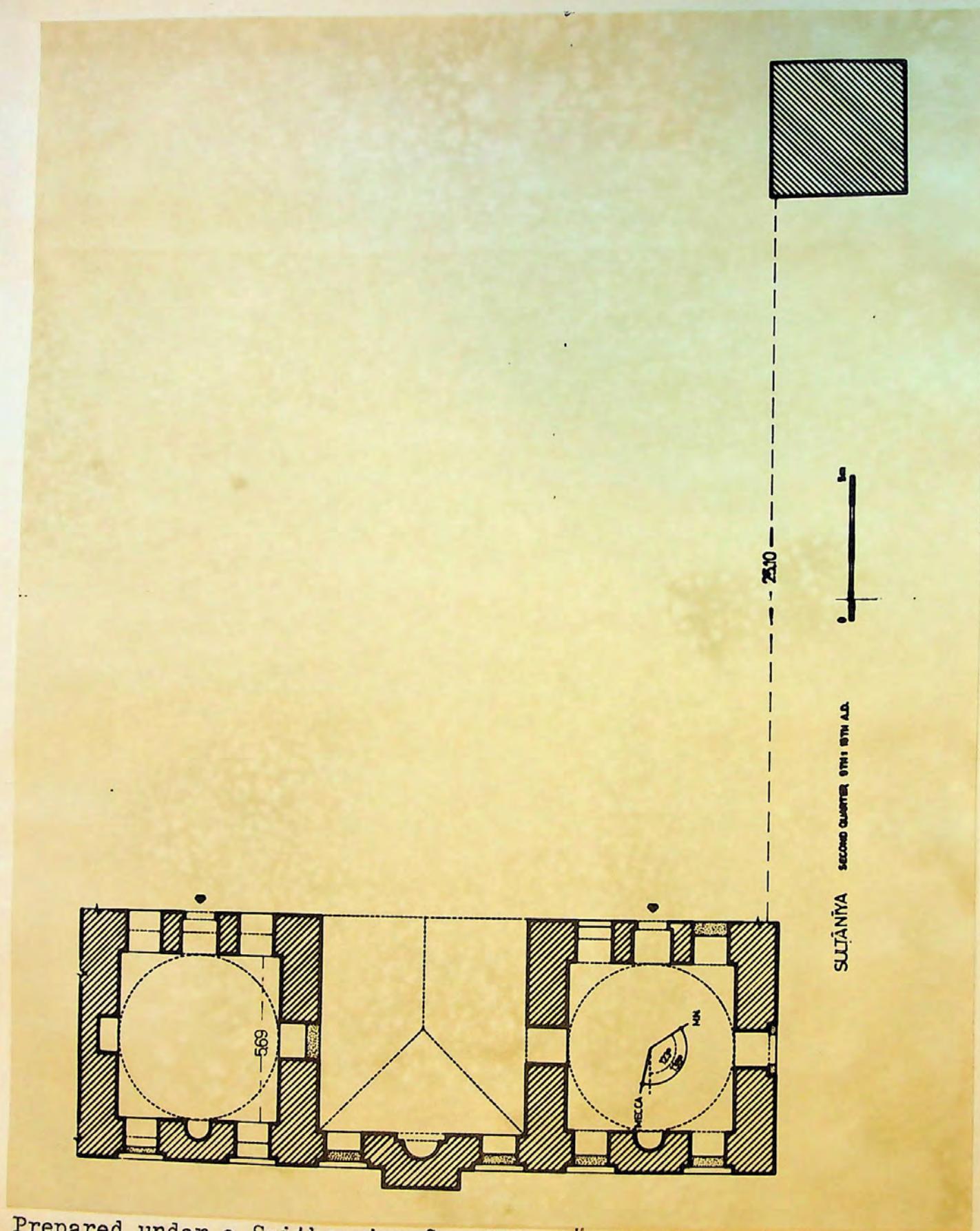
But although the ground plans are so symmetrical and identical, there are many differences in the architectural features, in the construction and in the decoration of these two domes.

A pishtaq crowns the facade of an iwān with a half domical vault. Its mihrāb is a niche with stalactite decoration in six tiers which is exceptional in Cairene architecture.

We now turn to a detailed analysis of each of the elements of this complex : the iwān, the decorated dome and the undecorated one.

⁽¹⁾ See ground plan on the next page.

PLATE I



Prepared under a Smithsonian Grant by C/M Kessler, A Survey
and Documentation of the Domed Mausoleums of Mamlūk Cairo, I, 29 (a).

-b- The Iwān:

The iwān, although partly rebuilt, follows the original design.⁽¹⁾ Its facade is of a rectangular pishtāq form and is framed by a double torus moulding which also runs around the upper part of the rest of the building; the moulding does not end where the wall presently ends. Small water spouts interrupt this moulding twice in front of each dome and thrice on the rear facade.

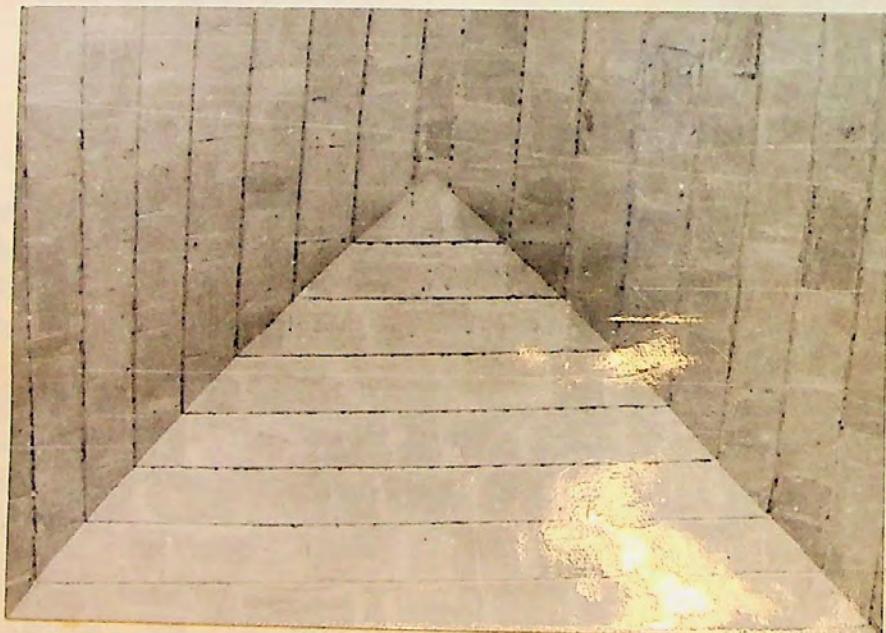
The arched opening of the iwān is surrounded by one course of stones (of a different color) set as stretchers. This course outlines the arch and interlaces at the top in a knot which links this surrounding band with that which underlines the rectangular shape of the pishtāq. These two stone bands are of the same color which contrasts with that of the stones used in the rest of the construction. (See ill. below).



⁽¹⁾ See p. 51

At the springing of the arch, there is an inscription band in naskhī on a floral scroll ground which starts at the right side with the basmala, runs around the inside of the iwān, and ends on the left side on the exterior. It is a Qur'ānic inscription which contains the first verses of the Surat Yassīn."

The inner roofing of the iwān is a so called 'arc de cloître', i.e. a simplified domical vault. To my knowledge, this is the only iwān with such a stone vault in Cairo (see illustration below).



Yet, this type of vault is quite often seen on a smaller scale on Cairene monuments as in the vaults of two guard rooms and corridors on the north walls of Badr al Djamāli (1087), and inside the Bāb al Nasr as roofing for the two lateral niches; or

⁽¹⁾ See Part I, E p. 57

9

as upper arches framing windows in the mausoleums of the
Salar and Sangar al-Gawli complex (1303/4) - see ill. below.



in a vault inside the entrance porches of the Khanqah of Shaykhū (1355) and of the Madrasa of Sirghitmish (1356); or as in the Madrasa al-Baqariyyā (1374) where the cloister vault roofs the projecting part of the entrance portal.....²

Cairene architects thus knew how to make such a vault, and commonly did it on a small scale; apparently the architect of al-Sultaniyyā was the first one to use it successfully on a large scale.

One other example of such a vault used for roofing an iwan is in Aleppo, in the Madrasa al Shadhbakhtiyya (1193).¹⁾ There are two other early occurrences of cloister vaults on a smaller scale, both in Aleppo : as roofing for the west entrance porch of the Mashhad al Husain (1173)⁽²⁾ and that of the Madrasa al-Sultaniyyā al-Zāhiriyā (1223/4).⁽³⁾

Aleppo and Cairo seem to be the only places where this type of vault - which is more characteristic of Western architecture - is seen; it is not at all common either in Anatolia or in Palestine or in Persia.

¹⁾ Herzfeld, CIA, pl. CV (a).

²⁾ Ibid., pl. XCVII (b).

³⁾ Ibid., p. 279.

-c- THE MIHRĀB OF THE IWĀN :

The iwān contains an elaborately carved stone mihrāb with a stalactite niche which is very close in profile, proportions, material, elements and style of decoration to the side niches of the porch of the Madrasa of Sultān Hasan (1356/62) - see illustrations p. 11 -.

The mihrāb and these two niches are both in the form of a four centered arch. Although the decoration of the mihrāb is more elaborate than that of the side niches, they have in common the following features:

(1) The general composition of the frame and the division of space: ⁽¹⁾ In the mihrāb of al-Sultāniyyā, a framing band, covered with foliate arabesque of pointed leaves and undulating scroll in low relief, delimits a large rectangular area with a small rectangular panel at the top containing a Qur'ānic inscription, ⁽²⁾ and below a larger rectangle into which is inserted the stalactite niche with spandrels carved in low relief with foliate motifs. ⁽³⁾ At the level of the fourth tier of stalactites, the two thin, uncarved bands which frame the spandrels interlace and form a guilloche pattern, which is not a particularly characteristic Mamlūk decorative feature (see ill. below).



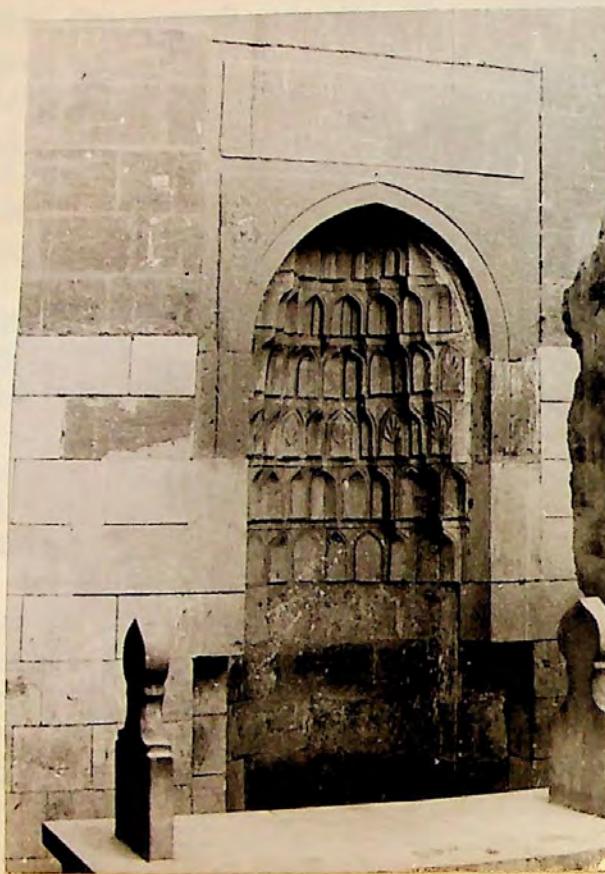
⁽¹⁾ see illust. 1 and 3 next page.

⁽²⁾ see Part I, Section E, p. 59

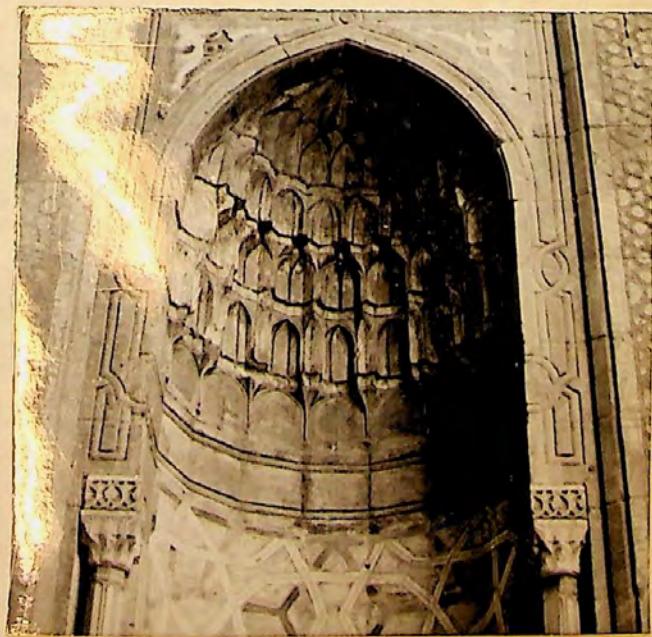
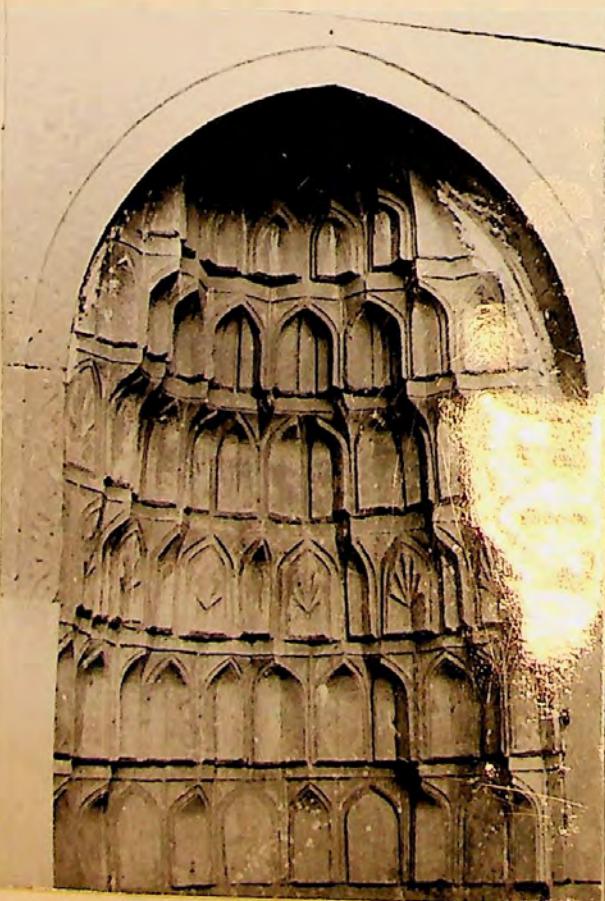
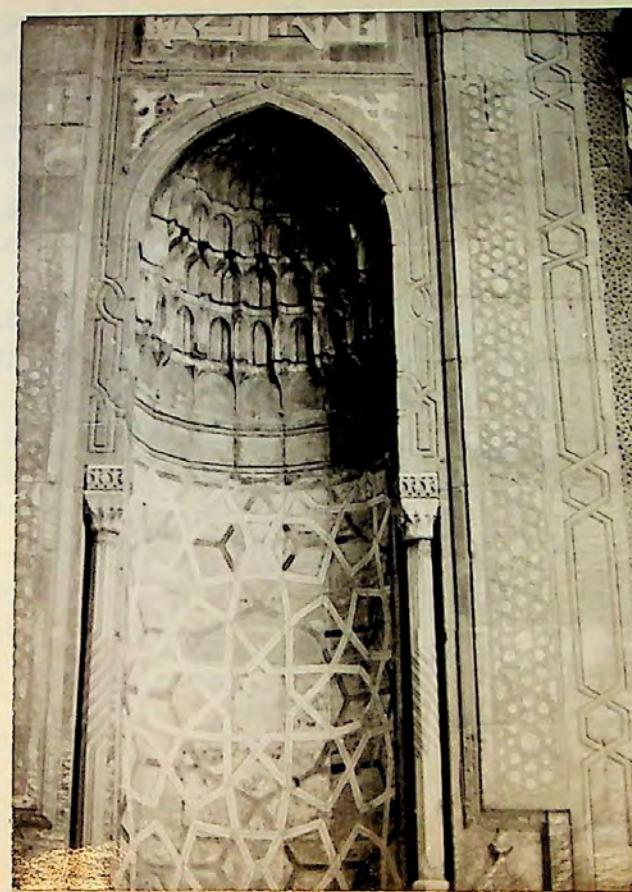
⁽³⁾ see Part III, Section C, p. 120.

PLATE II.

AL-SULTĀNIYYĀ



SULTĀN HASAN



The framing band and the guilloche pattern come to an end at the level of the upper part of the second tier of muqarnas, where they are replaced by the uncarved stones of the restoration of the lower part of the mihrāb. One course below the first tier of stalactites there is on each side of the niche a blank space evidently originally occupied by two engaged columns.

In the side niches of the Sultān Ḥasan porch the division of the space is identical: the framing band is thinner and undecorated but covers the same distance and frames the same elements in the same fashion. It continues uninterrupted round a rectangular inscription panel, round the rectangular frame of the mihrāb, and round the arch of the niche where it interlaces at the apex and forms a knot. It then continues around the arch of the niche and ends on the sides into an unusual guilloche pattern in which a pointed oval alternates with irregular elongated polygons which result from the intersection of this band and another part of it which descends vertically from the rectangular area above the apex of the niches. Below the last tier of stalactites the double band runs horizontally inside the niche; it then returns to the vertical irregular guilloche pattern of the borders (see ill. 3 and 4 opp.). The spandrels of the niche are decorated in marble inlay with a single calix with a base in the form of a knot flanked by two symmetrical pointed leaves.

The lower part of the niche, below the springing of the muqarnas is covered by an inlaid strapwork of overall linear geometric design. This niche is flanked by two small engaged columns with stalactite capitals surmounted by an ^{ablaq} band of continuous foliate scroll enclosing a vertical trilobed leaf with a central knot (see ill. below).

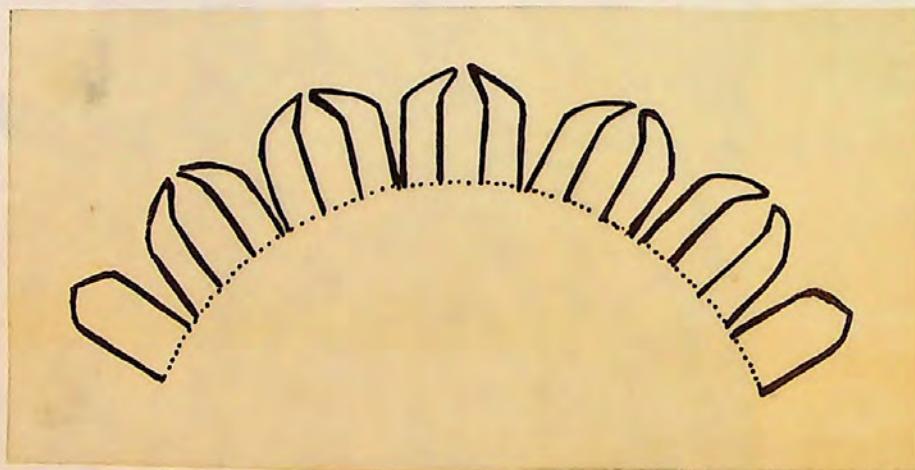


(2) The composition and structure of the stalactites:

The mihrāb of the iwān of al-Sultāniyyā is decorated by stalactites in six tiers.

The first tier contains ten regular stalactites; broad and shallow niches alternate with thinner ones, which are more curved at the apexes.

The second tier contains twelve irregular stalactites. Except for the two, at the beginning and end of the tier, each pair of niches points inwards to form one larger niche dissected into two parts (see drawing below). There are five units of these larger niches.



Niches two and four on each side are relatively thin, elongated and more curved at the apexes than the central one. They give depth to the composition.

The third tier contains twelve stalactites, alternately decorated and undecorated. The plain ones are very thin and elongated and the decorated ones are relatively wide and have shell-like hoods in the upper two thirds of their surface (see ill. 1 next page).

This scalloped motif closely recalls that which can be seen on the various parts of the porch of the Madrasa of Sultān Hasan in Cairo (1356/62), as for example at

the base of the columns (ill. 3); on the cornice of the mastabas on each side (ill. 2); at the base of the two vertical bands of arabesque which frame the portal (ill. 4); on the top most tier of the stalactite canopy of the window in the porch itself (ill. 5); and finally, on the top tier of the four-tier stalactite cornice above the side niches (ill. 6). Similar, but not identical niches can be seen on the upper tier of stalactites on the cenotaph of the Emir Sirghitmish (1356) - illustrations 7 & 8 . I have found no other examples of identically decorated stalactites in the architecture of Cairo.

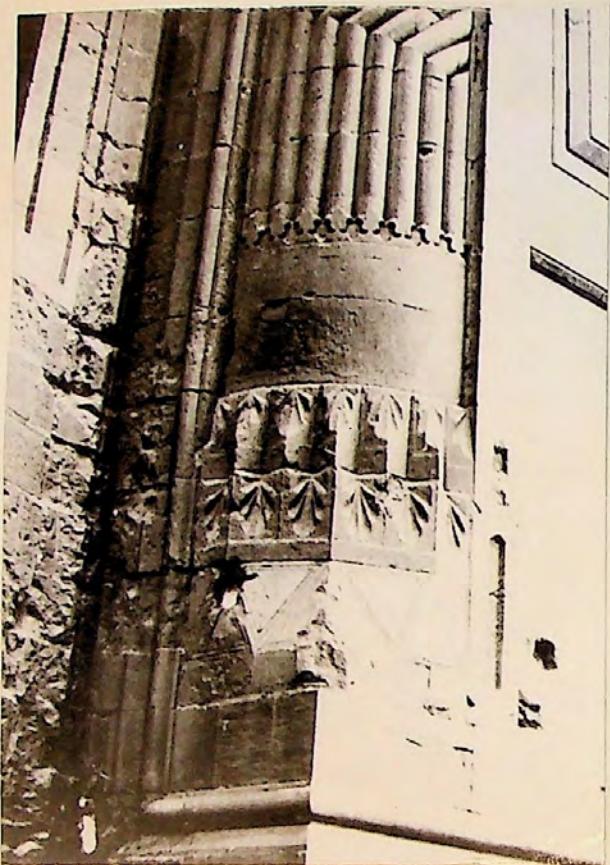


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(2)

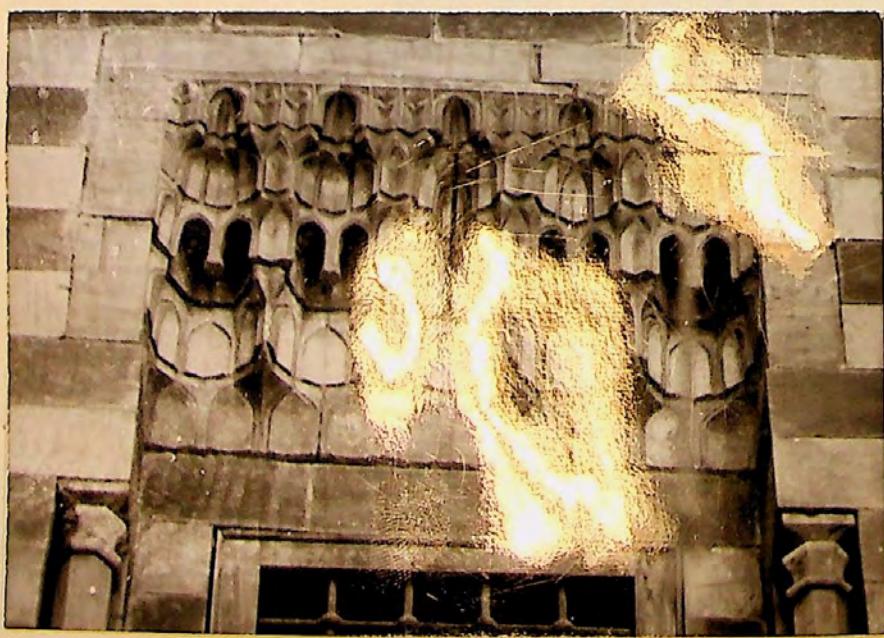
PLATE III



(3)

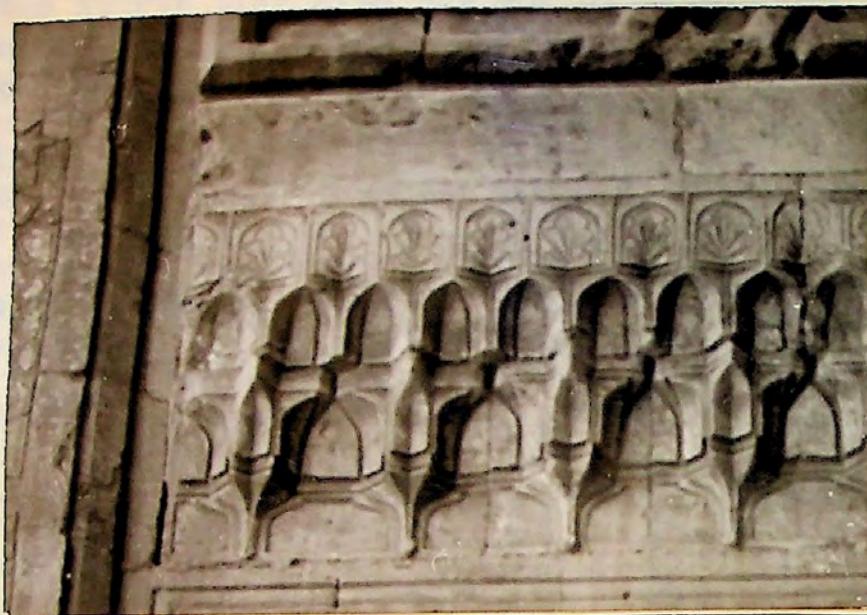


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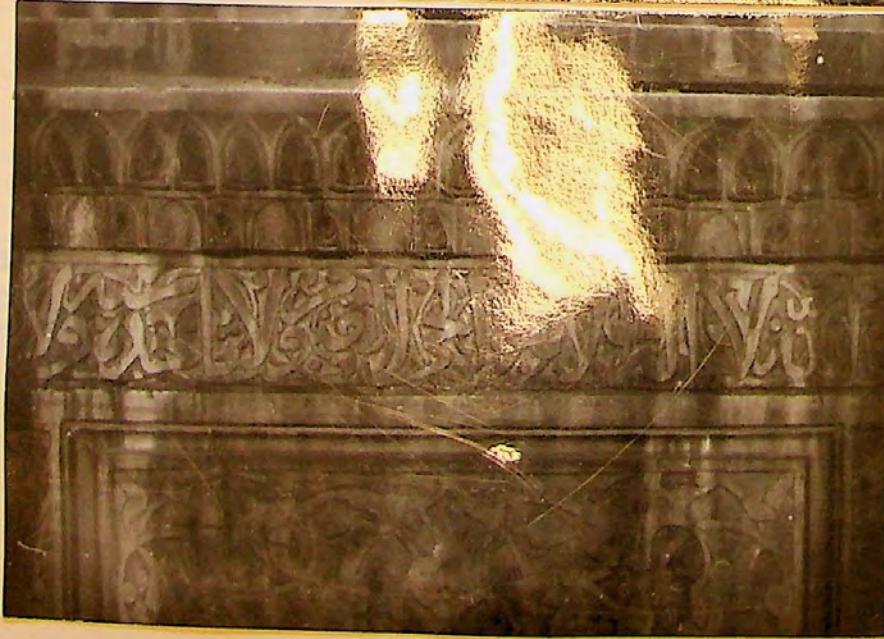
PLATE IV



(6)



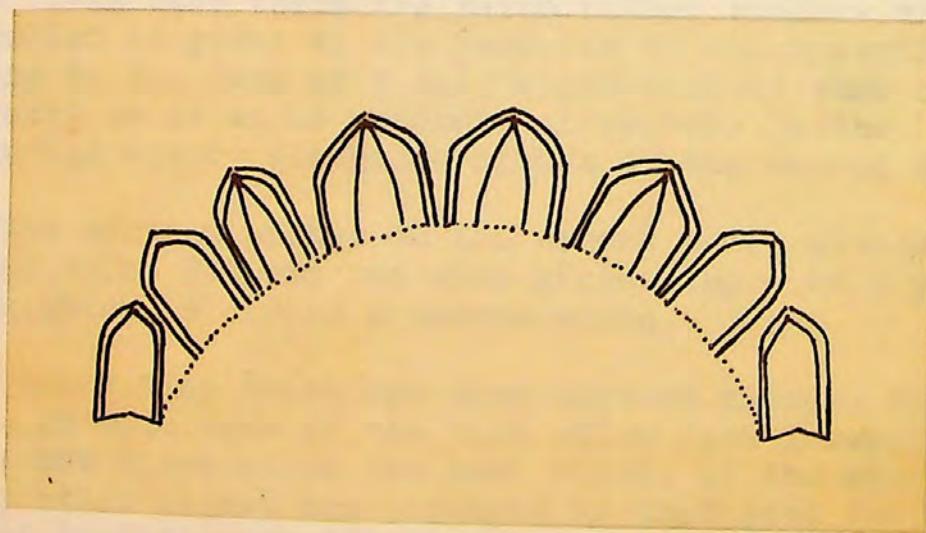
(7)



(8)

The fourth tier also has twelve niches. At each end of the tier there is one niche which is decorated similarly to the carved ones on the previous tier, with a shell like motif which covers two thirds of its surface. The other niches, excluding those immediately next to the decorated ones, are arranged similarly to those on the second tier - though here they are closer to each other, however, and more curved - each pair of niches being directed inwards to form a larger niche cut in two slices. There are four such compositions.

On the fifth tier the number of niches decreases to eight; the three central ones are divided by grooved lines into three parts, in a somewhat shallow fluting. Their outline recalls the profile of the mihrāb niche. At either end of the tier there is one niche which directly faces forwards, not fitting the direction of the other niches which are arranged on the circumference of a circle, it has no structural function, only a decorative one (see drawing below).



On the sixth tier there are five niches of the same profile as those on the preceding tier, but smaller. All the muqarnas, whether shallow, thin, elongated,

carved or plain have a grooved frame which surrounds each niche.

At the apex of the conch there is a half twelve-pointed star rosette concavely fluted surrounded by irregular hexagons characteristic of such star rosette. The lower points of these hexagons or 'mailles' (as Bourgois calls them) abut on to the apices of the uppermost tier of stalactites. These 'mailles' are filled with inverted trefoils with a carefully moulded profile outline, each leaf contains a pointed petal-like knot. The stems of the calices join behind the apex of each hexagon and themselves form part of a twelve point rosette. The 'mailles' are executed in regularly interlacing grooved strapwork. The straps at the apex of the 'mailles' interlace and form the outside border of the uppermost tier of stalactites (see ill. 1 & 2 on the next page).

The side niches in the Madrasa of Sultān Hasan are in five tiers of stalactites.

On the first tier there are seven rather shallow niches, some relief is given by the pendants of the upper tier. They are in the form of a half eight-pointed star and are placed so as to be pendants or corbels to the alternating narrow elongated niches of the second tier.

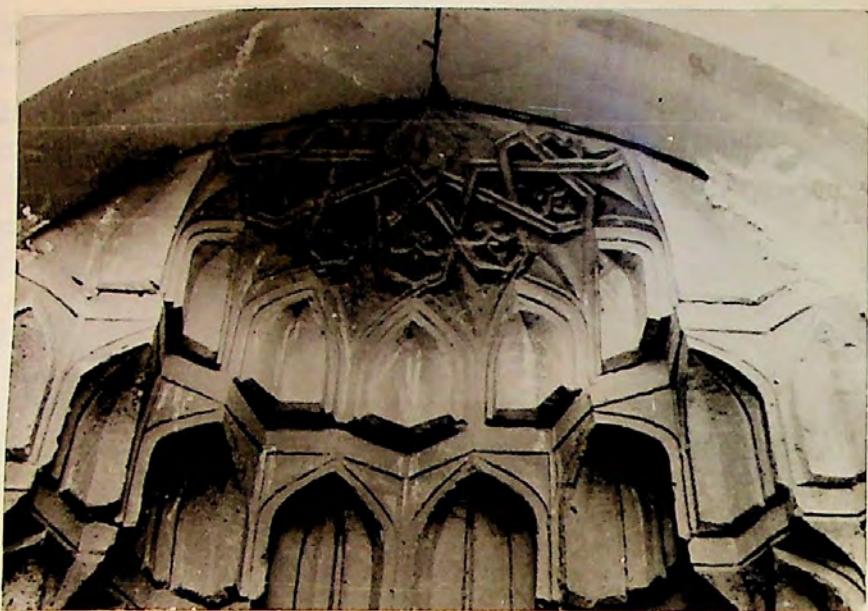
There are sixteen niches on the second tier, alternately wide and thin. Between two wide niches there is a projecting area in which is carved a narrow niche.

On the third tier there are also sixteen niches. Excluding the one at both ends of the tier which face forwards and are not disposed on the semi circle of the mihrāb, all the other niches are arranged so that each two are directed towards each other forming compositions of larger niches in two parts, seven in all (see drawing p. 13).

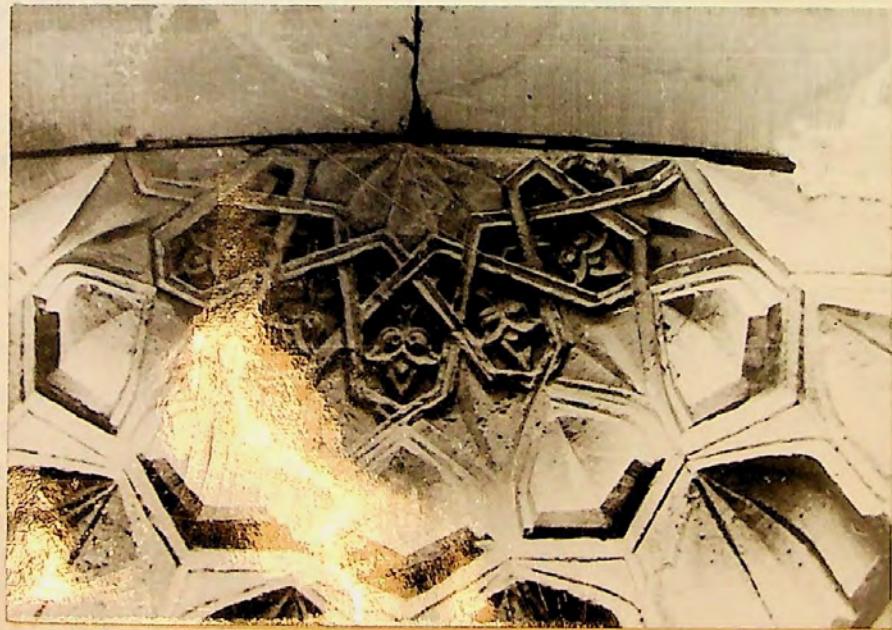
On the fourth tier there are ten niches; the six central ones are divided by grooved lines into a shallow fluting in three parts.

The seven niches on the last tier are plain. Inside the hood of the side niche there is a fluted star rosette with seven elongated branches which interlace at the apex of the stalactites on the upper tier and then surrounds them (see ill. 3 on the next page).

PLATE V



(1)



(2)



(3)

Stalactite mihrabs are not a common feature in Mamluk Architecture. In Cairo there are three cases of mihrabs with one tier only of stalactites: at the base of the conch of the mausoleum of al-Sawābī (1285); of the mausoleum of Salār al Gawlī (1303/4); and of the mausoleum of Badr al Din al Qarafī (1309/10). There are two cases of mihrabs with two tiers of stalactites at the base of a fluted conch: that of the mausoleum of Tatař al Hidjāziyyā (1348 or 1360) and that of "Anas" in the Northern Cemetery (1382).

In all these mihrabs the one or two tiers of niches are in stucco, in simple compositions and structures and the units are undecorated.

Unlike these, the stalactites of the mihrab of al-Sultāniyyā and the two side niches of the Madrasa of Sultān Hasan, are of stone and consist of five or six tiers in complex compositions of niches with variations in their position, structure and decoration.

They show marked similarities in the general composition of the frame and division of space, the framing band of the upper rectangular inscription panel, *and which* also surrounds the four centered arch of the niches. The guilloche pattern which is not a usual Mamluk decorative feature is seen on both examples; and in both cases engaged columns appear to have flanked the niches. There are also similarities in the composition and structure of the stalactites: in the number of tiers and the number and arrangement of niches on each tier. In the mihrab there are six tiers; on the first there are ten niches, then twelve for the next three tiers then eight and finally five. In the side niche of the Madrasa of Sultān Hasan there are five tiers, with seven niches on the first tier, sixteen on the next two tiers, then ten and finally seven. In each case two or three tiers have an identical number of stalactites instead of the usual gradual progression from top to bottom. Moreover, the unusual feature of pairs of niches with apexes directed towards each other so as to form a larger composition (see drawing p. 17) is seen on the second tier of the mihrab where there are five such compositions and in the third tier of the side niches where these are seven.

Another unusual feature which can be seen in both examples is the two niches at either end of the fifth tier in the mihrāb and of the third tier in the Side niches ~~which~~ face directly forwards and are not disposed on a semicircle (see drawing p.). Another feature which they have in common is a type of niche with a three part flat fluting such as on the fifth tier of the mihrāb and the fourth tier of the Side Niches.

Finally the same decorative elements ~~are~~ found at the topmost central part of both conches: at the apex of the mihrāb there is a twelve pointed star rosette concavely fluted surrounded by hexagons which interlace and form the outside border of the upper tier of stalactites. In the side niches the fluted star rosette has only seven branches which also interlace at the apex of the uppermost tier of niches and surrounds them.

Professor John Michael Rogers has shown in his "Seljuk Influence on the Monuments of Cairo"⁽¹⁾ that the Side Niches of the porch of the Madrasa of Sultān Hasan are very close in style to the side niches of the Gök Medrese in Sivas (1271/2). This Anatolian influence is also seen in the Mihrāb of al-Sultāniyyā and then never again in Cairo. But the mihrāb is not a copy of the side niches, it is more elaborate in structure, decoration and details. It seems to be a slightly different and original interpretation of the same pattern and idea which inspired the architect of Sultān Hasan who adapted the Anatolian model.

Because these three niches are so similar in proportions, shape and decoration and because they are unique in Cairene architecture, it is tempting to suggest the possibility that they were the ~~adaptation~~ and the achievement of the same artist or of someone of the same school; and that the mihrāb of al-Sultāniyyā was made shortly after the Side Niches of the porch of the Madrasa of Sultān Hasan.

⁽¹⁾Study read in a condensed form to the 3rd International Congress of Turkish Arts at Cambridge in July 1967.

-d- THE DOMES :

Undoubtedly the most striking elements of al-Sultāniyya are the two domes which rest on two equal square chambers flanking the central iwān. Externally these two domes are quite similar, but not identical. The more one studies their structural elements, their construction method and their decoration, the greater the differences in details between them appear, to the point that it is often suggested that they were neither made at the same period nor by the same hand.

But a close study of the ground plan of these two domed chambers shows that they are part of a perfectly symmetrical complex which has been conceived and designed by a single mind, who, moreover, had enough space for building to allow him to introduce no distortions in the plan. This is a characteristic of cemetery architecture in contrast to town architecture where the funerary monuments are to fit into a limited area and are distorted to adjust to street alignments.⁽¹⁾

In al-Sultāniyya, the square chambers are of equal size, their walls of the same thickness and the windows and doors of the same length.⁽²⁾ Moreover, there is no architectural break in bond or difference in stone laying to support the view of a later addition. It was planned as a complex comprising two equal domes flanking an iwān, similarly to the plan of the khanqah of Qawsūn, a few meters away, in the Qarāfā al-Kubrā, which originally had two domes on each side of the qibla riwāqs.⁽³⁾ Another example of a symmetrical plan is the khanqah of Faradj ibn Barqūq in the Northern Cemetery (1401/10), which is on a rectangular plan with two equal domes on either side of the qibla riwāqs, with at the NW end of the rectangle, two identical minarets.

⁽¹⁾ See Dr. Christel Kessler's paper presented in the 1969 Millenary of Cairo: " Funeral Architecture within the City ".

⁽²⁾ See paragraph on measurements in section B, p. 4&5.

⁽³⁾ This was demonstrated in " The Khanqah of Qawsūn ", an unpublished research paper presented by 'Adil Yassīn to Dr. Christel Kessler in June 1970.

We will first analyse the common elements of these twin stone domes each on a very high cylindrical drum and with stalactite corbelling at the base of each rib.

(1) On the exterior a low transitional zone three courses of stone in height, which is octagonal in the northern dome and dodecagonal in the other one.

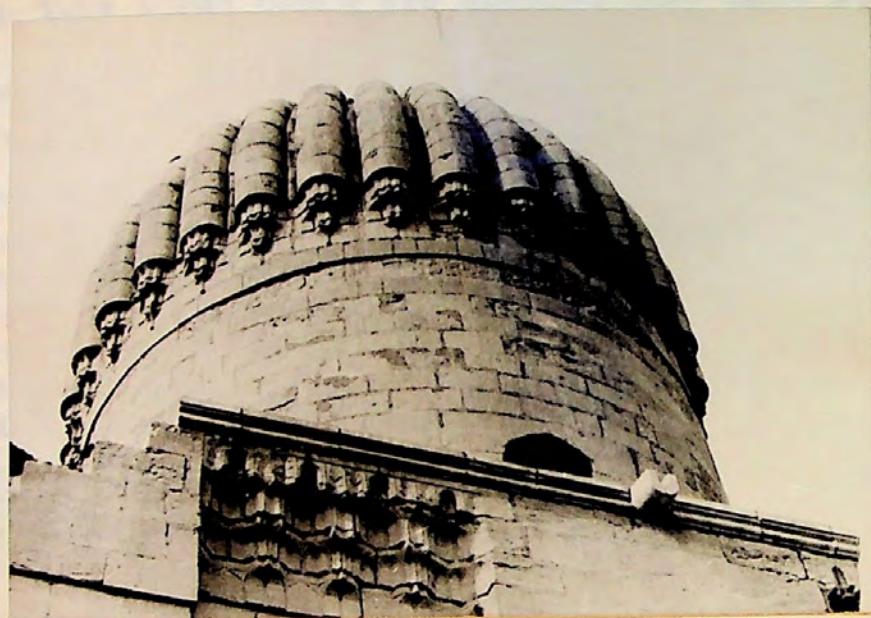
(2) An unusually high cylindrical drum pierced at the base by series of windows of five courses in height in each case. Above the windows, the circular drum extends for seven courses of stone more (see ill. below).



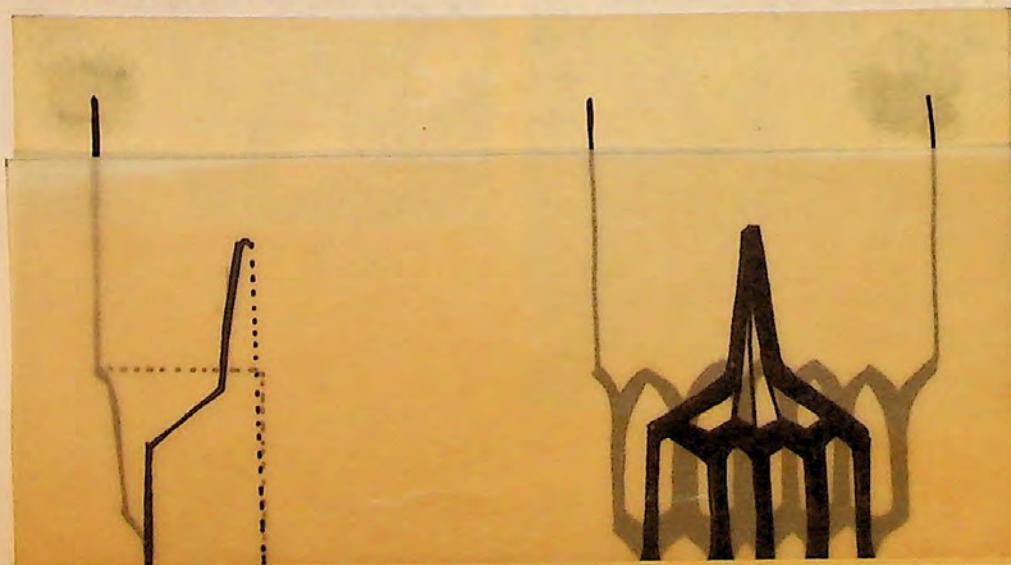
(3) A band of Naskhi inscription which in both cases is the Ayat al Kursi, on the course of stones immediately below the stalactite corbelling ^{of} the ribs of the dome.

(4) Above the inscription band, three tiers of stalactite corbelling are at the base of each of the ribs of the domes. The ribs and their bases are separated by a convex V shaped moulding between each; the moulding is continued downwards by a concave groove. Thus each rib and

its stalactite corbelling forms a complete and independent unit by itself (see ill. below).



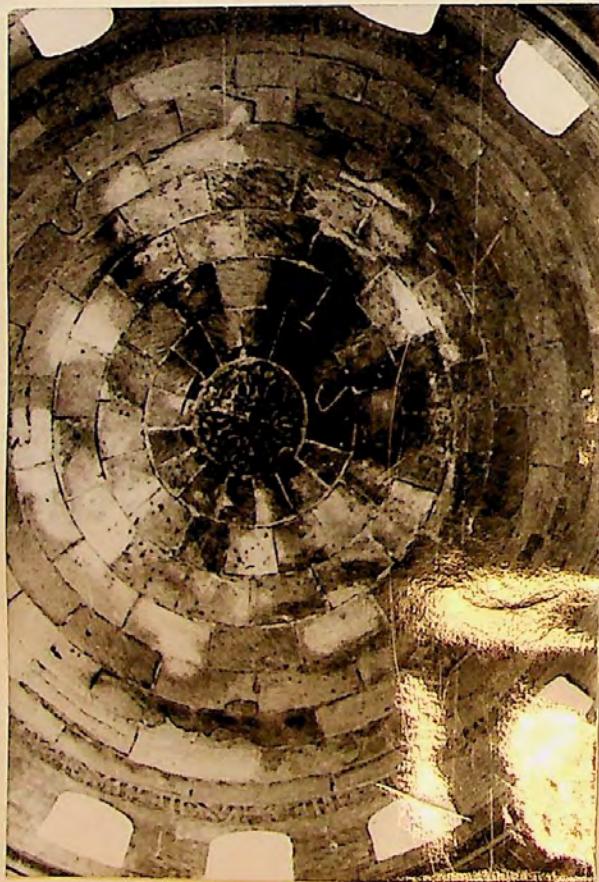
A section of these three tiers stalactite corbellings shows that the first one is on half an eight pointed star with the profile of a fan-shaped pendant; the second contains four complete niches which fit in between the points of the truncated star; and the third tier, which is on half a ten pointed star, contains five niches (see drawings below).



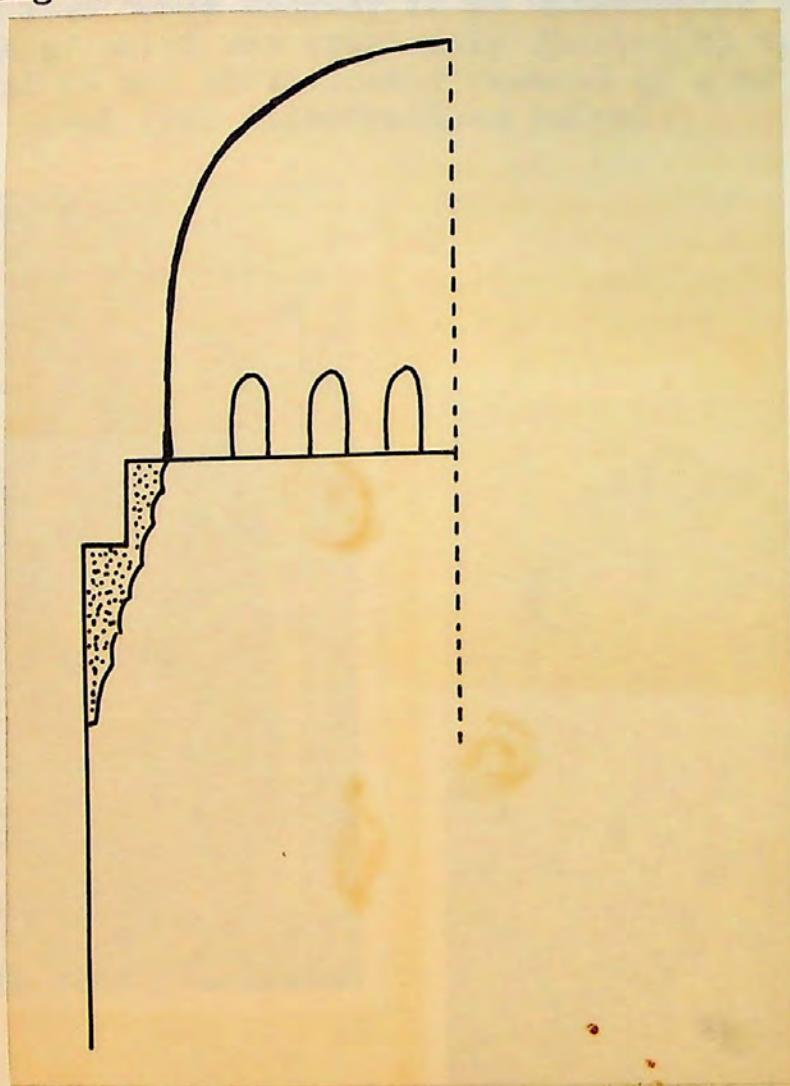
All these compact elements at the base of each rib give to the domes a slightly bulbous profile even though the ribs themselves are not curved.

(5) These twin stone domes are double. They have an exterior shell which rests on a high cylindrical drum, and is more than a hemisphere; and an inner dome, also in stone, which is less than a hemisphere.

The northern mausoleum has an inner dome constructed in successive concentric courses of stone. The inner dome of the southern mausoleum is built in the experimental fashion of a twelve sided domical vault. Both inner domes have at their apex a roundel with a low carved floriated motif painted on a light green ground (see illustrations below).



(6) In the two square chambers the stalactite transitional zone at the corners is placed so that two thirds of its height is still in the square area of the chamber, and only the last third of it is actually at the height of the external octagonal or dodecagonal transition zone (see drawing below).



The cornice, which traditionally marks the beginning of the transition zone is here an architectural element which lingers: the architect retained the cornice although there is no longer any point in using it as a separation between the square base and the circle because the transition zone starts from the square; he inserted it below the transitional zone, nine courses of stone

below the dodecagonal drum in the southern dome, and seven courses below the circular drum in the northern mausoleum.⁽¹⁾

(7) Inside each domed chamber is an undecorated stone mihrāb each of which was originally flanked by two columns. Their height is now considerably reduced of a rise in the ground level (see illustrations below).



⁽¹⁾ Mrs. Layla Serag al Din, who is presently interested in this point, has attracted my attention to this feature. She found that the earliest dated example is in the Mausoleum of Fatma Khatūn (1283/4); it is also present in the undated example of 'Abdallah al Manufī in the Qarāfā al-Kubrā (XIII th century).

The differences between the two domes may be divided into structural differences and dissimilarities in decoration.

-i- Structural Differences :

On the exterior there are two minor structural differences: the shape of the transitional base of the domes and the number and shape of the windows at the base of the drum. In the northern mausoleum, the cylindrical drum rests on an octagonal base and is pierced by sixteen four-centered arched windows. In the southern dome, the cylindrical drum rests on a dodecagonal base; it is pierced by twelve windows which are larger and slightly pointed at the apex of the arch (presumably to lighten the load of the domical vault).

In the interior, however, there are more striking differences.

(1) The coursing of the inner dome of the northern mausoleum is in eight concentric circles, each row contains sixteen stones which become gradually smaller so that the joints of one course fall in the center of the stones of the next course. The inner drum is cylindrical. In the southern mausoleum, the inner dome is a twelve sided domical vault, each of the twelve triangles which form the domical vault is composed of eight courses of stone which reduce progressively towards the center. The inner profile of the drum is dodecagonal. This is an elaborate experimental dome construction unique in the Mamlūk architecture of Cairo.⁽¹⁾ (see illustrations p. 25).

(2) The conches of the mihrābs in the domed chambers are structurally different: one is made by rhomboïd stones set diagonally in five rows, while the other is made by two simple horizontal courses of stones of a larger scale than the rest of the construction.

In the northern mausoleum the mihrāb is a four-centered arched niche. The upper part of the niche recalls persian Seljuk brickwork technique of plastering bricks into a vault for decorative purposes. Here stones are used

⁽¹⁾ The only example which could be compared to it is one of the small shallow half domes roofing the passage on the street side inside the mausoleum of the Emir Sirghitmish (1356).

instead of bricks and there are five rows of stones set diagonally to form a somewhat irregular chequered pattern (see ill. below).



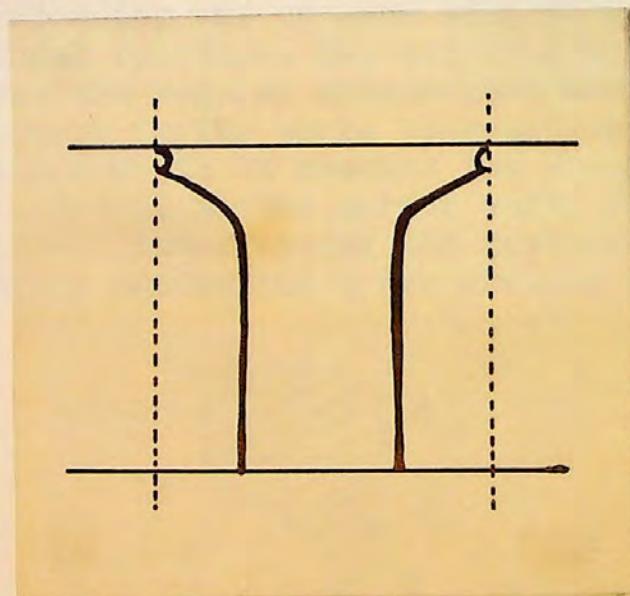
In the southern dome the mihrāb niche is a four-centered arched niche. The mihrāb is composed of six rows of horizontally coursed stones of the same size. The conch of the niche is formed by two horizontal courses also, but these are of a larger size than those in the rest of the construction. An amusing detail is that although the stones are set so simply, some person at a later date, has drawn in over the horizontal stones with black chalk or charcoal the shape of lozenges as a reminiscence of the stone disposition in the mihrāb of the northern dome (see ill. p. 27).

(3) There is a cenotaph in poor state of conservation in the center of the southern domed chamber. There are no inscriptions on it, and only a few stones remain of the original construction. There is no trace of such a cenotaph inside the northern dome.

-ii- Differences in Decoration :

The basic difference between the two domes is that the northern one is decorated externally and internally and the other dome totally lacks decoration. Its only decoration is an architectural feature: the construction of an inner dome in a twelve sided domical vault with a floral medallion at the apex of the inner dome.

On the exterior the northern dome has a decorated drum pierced by sixteen windows. The area surrounding these windows is filled by a complex symmetrical low carved foliate motif⁽¹⁾ which is repeated in the area between the apex of one window and the apex of the next one (see drawing below).



Above this area, and on the next seven courses of stones, there is a band of square kufī on an uninterrupted grid of sixteen squares. Each square unit consists of the combination of the five names of the Prophet and his first four Khalifs: Mohamed, Abū Bakr, 'Umar, 'Uthmān and 'Alī.⁽²⁾

The cylindrical drum is crowned by a somewhat damaged naskhī inscription which occupies one course of stones. This band is the only decorative feature common to both domes;

⁽¹⁾ See Part III, Section 3 (b), p. 117.

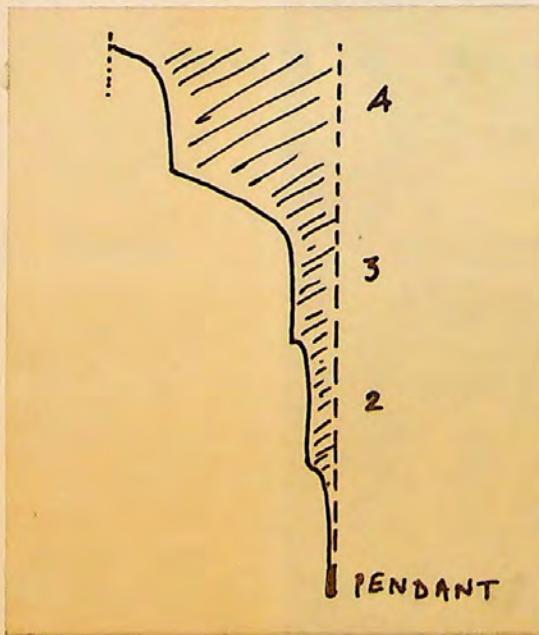
⁽²⁾ See Part I, section E, 2 (a), p. 59.

apart from a similar inscription in a better state of conservation, the cylindrical drum of the southern mausoleum is undecorated.

In the interior, the difference in decoration between the two domes is even more striking. (See illus^s. next page)

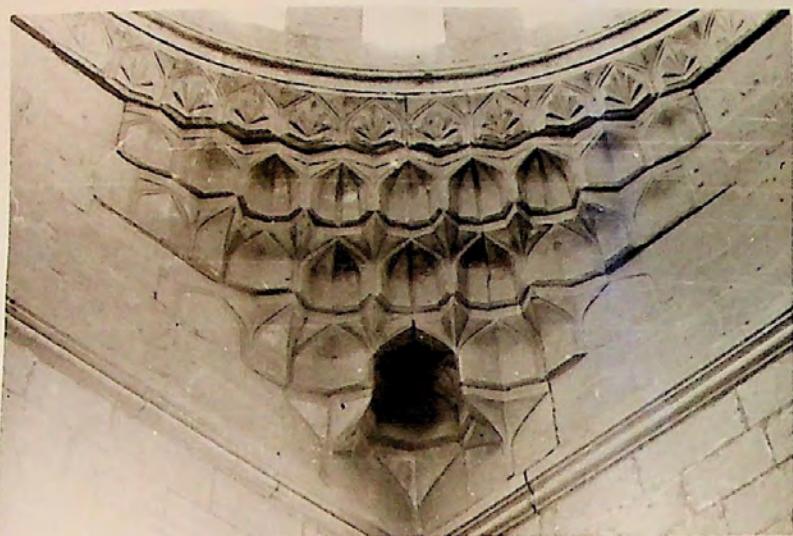
In the northern dome the stalactite pendentive is in six tiers. It starts with a flat two sided pendant contiguous with the corner wall. Above it, on the second tier, a flat niche delimits the depth of the projection between the stalactite composition and the corner wall.

On tier three there are seven niches; the one at both ends of the tier is merely outlined on the wall, with no relief. The following one on each side is a curved half niche with a structural function. The two niches flanking the central one are regular undecorated ones. The most remarkable element in the whole composition is the central niche: it deepens until it reaches the flat niche on tier two which is adjacent to the corner wall. It forms a "deep composition" interrupting the gradual progression of the stalactite pendentive (see drawing below).



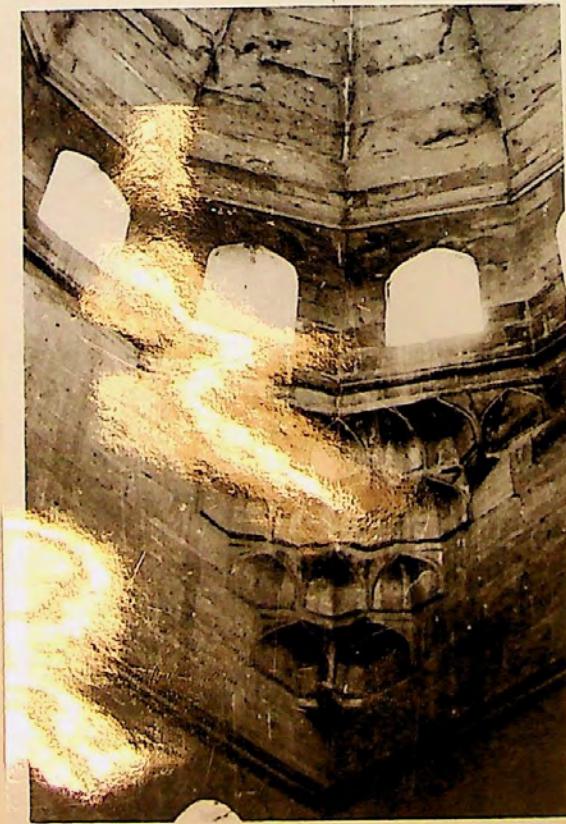
The inner surface of this composition is octagonal in plan. It is decorated by a large four pointed star, the points of which are set at four of the sides of the octagon. Inside

PLATE VI

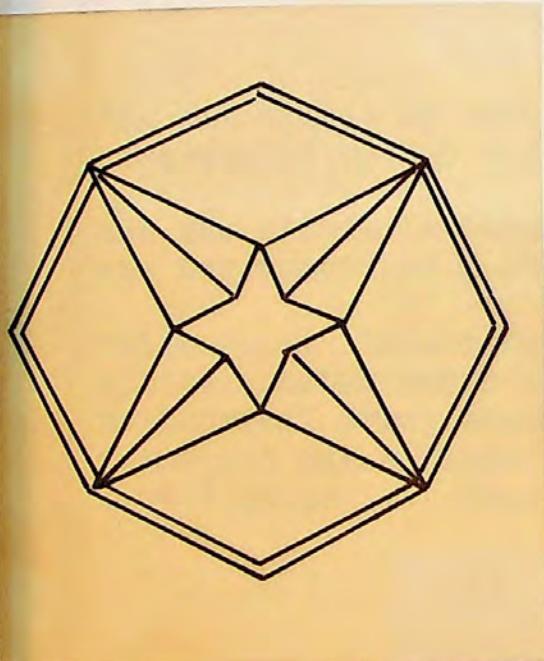
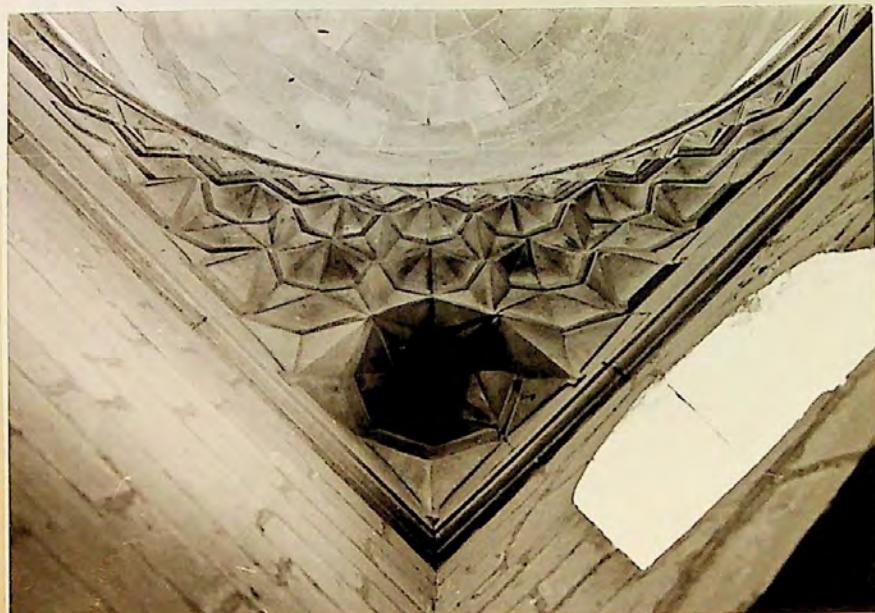


North DOME

South DOME



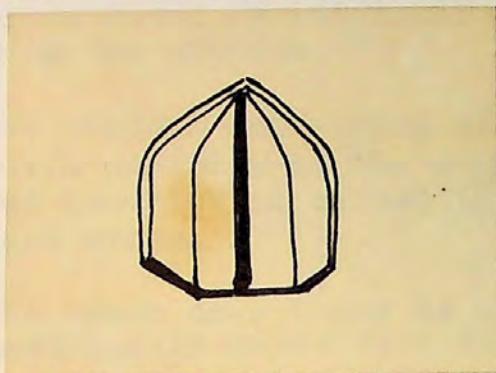
this star, a smaller four pointed star is inscribed, with its points in the direction of the faceted apexes of the octagon. The points of the smaller star abut in the middle of the points of the larger ones and divide them into four parts (see drawing and ill. below).



On the next two tiers the stalactites are arranged vertically above those of the previous tier instead of being set alternatively. This is a unique feature according to Creswell.⁽¹⁾ Of the nine stalactites of the fourth tier, only the three central ones, cut in four flat slices by grooved lines, are vertically above those of the previous tier, while the three niches on each side are closely similar in disposition and shapes to those flanking the central niche on tier three; with the first one merely outlined, the second one a curved half niche and the third one a regular undecorated niche.

⁽¹⁾Creswell, "Brief Chronology of Mohamedan Monuments", p.129.

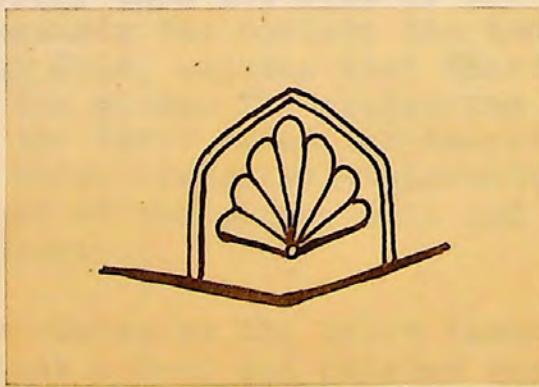
On tier five, the five central niches are set vertically above those of the fourth tier. They are divided into two halves by a deep double grooved line (see drawing below).



The two niches at each end of the tier are regular undecorated rather shallow stalactites.

All the niches in this stalactite pendentive composition are surrounded by a grooved frame.

This complex stalactite pendentive is crowned by one tier of stalactites which runs uninterrupted below the cylindrical drum. Each niche is surrounded by a double frame and has a fluted shell-like hood ending in a flat V shape (see drawing below).



Above this uninterrupted tier, there is a small cavetto which is the final link between the lower transitional zone and the cylindrical drum.

Above the inner cylindrical drum there are three decorative elements. In the lower part, above the cavetto, a band of uninterrupted plated pseudo kufī in a continuous repetition of the same element: a central complex "intrelac"

framed by two vertical knotted bands on each side.⁽¹⁾

The area between the windows is decorated by a low carved complex symmetrical foliat^a-motif which is repeated in the area between two windows.⁽²⁾

Finally, above the windows and ending at the point where the concentric coursing of the inner dome starts, there is a thuluth inscription carved in low relief and painted in dark brown.⁽³⁾

At the apex of the inner dome there is a roundel with a low carved symmetrically repetitive foliat^a-motif painted in dark brown and enhanced by the light green color of the background.⁽⁴⁾ The similarity of decoration of the keystone of the two domes seems to indicate one craftsman for both, all the more so because that central roundel is the only decorative element inside the southern mausoleum where the emphasis is more on structure than on decoration and which is characterized by a bare and austere architecture reminiscent of the Mausoleum of Salār al-Gawlī (1303/4).

The stalactite pendentive in the southern mausoleum is in five tiers. There are only two niches in the second tier, larger than the ones on the following tiers and distorted towards the center: the two thirds on the border is almost flat, and the last third is in relief and gives depth to the niche. The projecting part of these niches rest on the three sided fan-shaped pendant on the first tier which links the stalactite pendentive to the lower part of the corner wall and starts the stalactite composition.

There are three niches on the third tier; two rather shallow ones flank a deep and pointed one. On the fourth tier there are four complete niches and on each border, one pendant with irregular sides. Each pendant supports two niches on the fifth tier: the two small sides fit into the last niche which has only one quarter of its surface curved; and the two larger sides fit into the second niche.

⁽¹⁾ See Part I, Section E, 2(c) for a detailed analysis of this type of script.

⁽²⁾ See Part III, Section 3 (b), p. 117

⁽³⁾ See Part I, Section E, 2(b), p. 56

⁽⁴⁾ See Part III, Section 3 (b), p. 115

On the fifth tier there are seven niches. The niches on the borders are flat in the three quarter of their surface and the last quarter is curved and raised. The other are identical by pairs; the central one is the largest.

This stalactite pendentive although quite unusual according to Creswell⁽¹⁾ is austere : no complex structural and decorative composition. The niches are undecorated - except for the grooved frame which surrounds each one of them - in fewer tiers and less numerous than in the northern mausoleum. Moreover, the niches in each tier are not placed vertically above those of the preceding tier, but alternately as in most of the Cairene transitional zones.

Above the stalactite pendentive there is no continuous tier of decorated stalactites, no floriated carving over the spandrels and arches of the windows and no bands of inscription.

⁽¹⁾Creswell, "Brief Chronology of Mohamedan Monuments", p. 129.

(2) THE FREE STANDING MINARET :

At 25 m 10 north west of the two domes flanking the central iwān, there is a free standing minaret. This minaret must have been part of the Sultāniyyā complex because of several architectural indications on the minaret : the cubic base of the square shaft of the minaret has on its SW wall, in contrast to the other three sides, no dressed stone. It also lacks the moulding which crowns the other three sides and which continues for a short distance around the west corner, which itself is edged with dressed stone (see illustrations below).



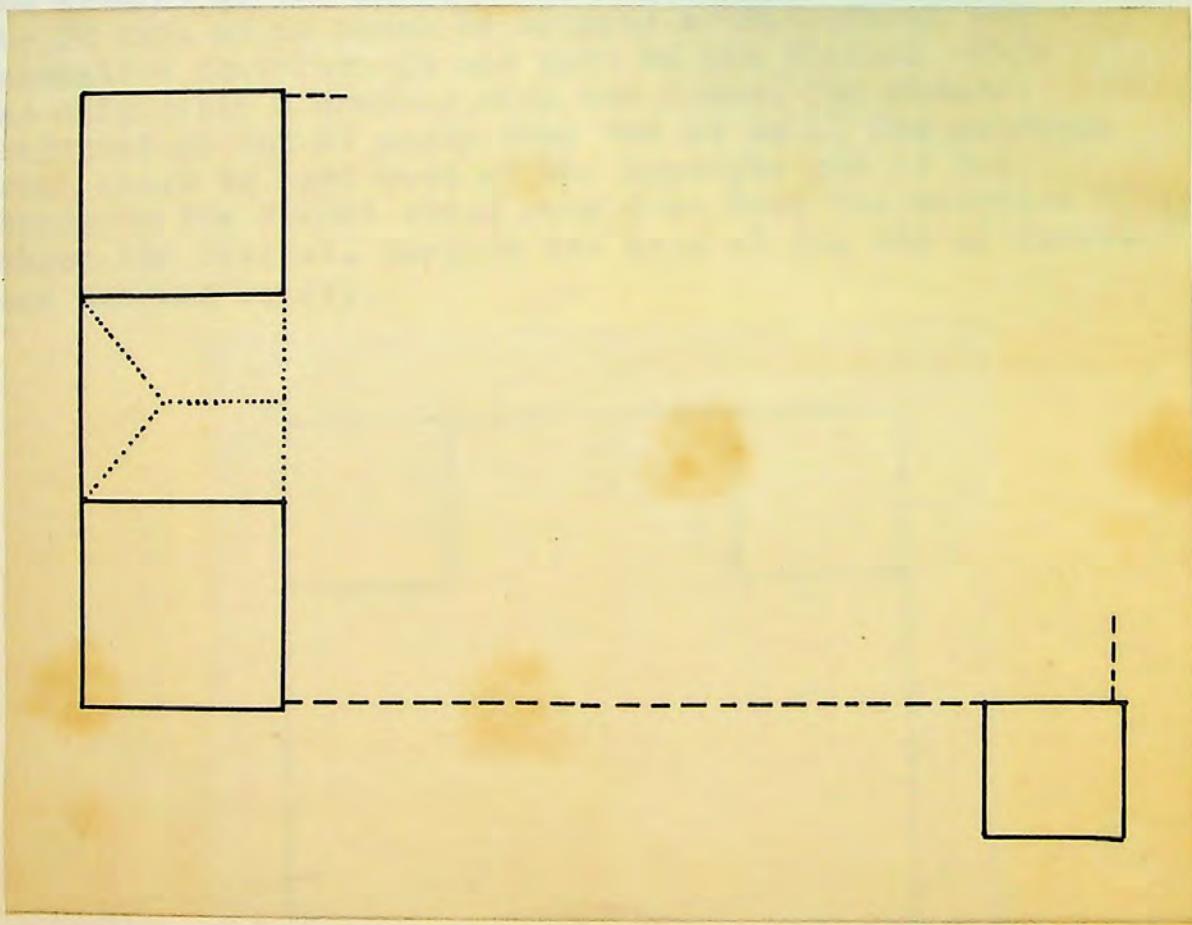
This cornice and the dressed stone areas indicate those parts of the minaret which were free standing. This enables us to suppose that the SW side was contiguous with a wall.

In fact a line projected from the SW side of the minaret to the iwān-dome construction gives a straight wall. It meets the NW wall of the northern dome at a point inside the corner edging of dressed stone. At that point, there is an open vertical bond of one header and one stretcher (see illustrations below).



These are clear indications that there was a wall linking the iwān-dome complex to the minaret. The extent of the junction on the SW side is indicated by the corner edging of dressed stone. The wall - just before the corner - must evidently have made a 90° turn and continued on the NW side, so as to form an enclosure to the complex.

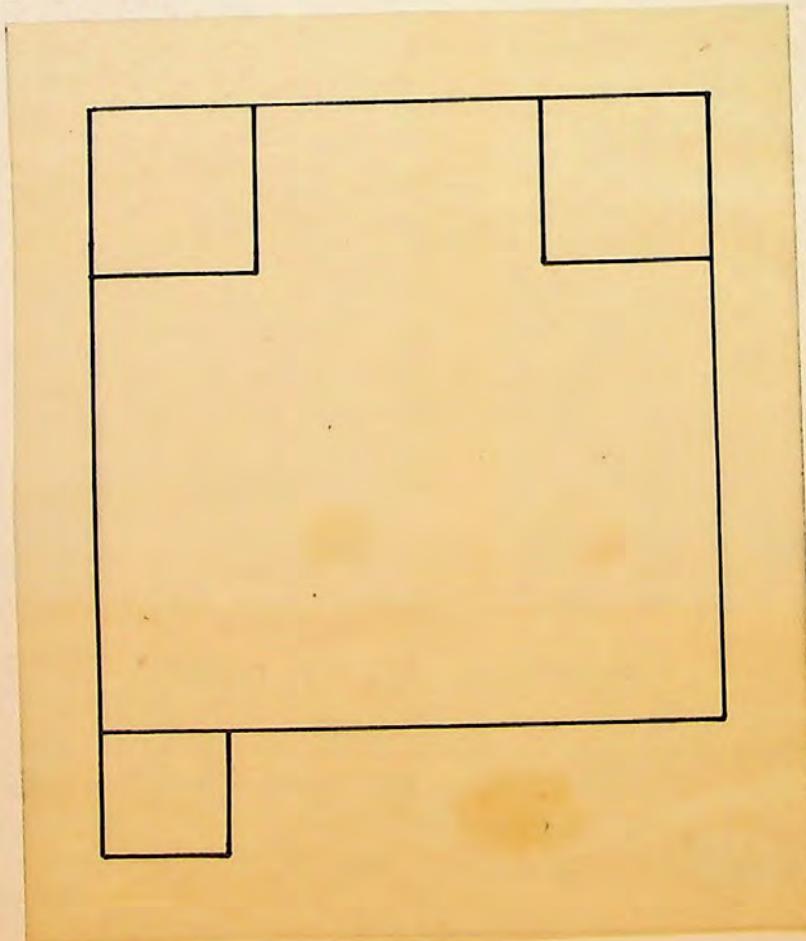
The minaret therefore stood outside the enclosure wall on the NE and was free standing on three sides (see drawing below).



Further archeological evidence that the minaret was associated with the dome-iwān structure is the fact that, above the cubic base, on the SW side of the square shaft of the minaret there is an arched opening which gives access to the interior. The opening is placed too high to have been easily accessible from the ground. One can therefore assume that it must have been reached from the top of an enclosure wall. If the wall was not contemporary with the minaret, it would have been unreachable except by means of a long ladder; which as a general method of access is unheard of among Cairene minarets.

Two other examples in the area of the Qarāfā al Kubrā offer comparative material for projecting minarets, also free standing. Both show architectural traces of having been linked on one side only. These minarets are the Southern Minaret (dated in the Index to the XIVth century) and the Minaret of the Khanqah of Qawsūn (1337).

The Southern Minaret seems to have been joined on the SE side as a photograph made in 1860 by F. Frith shows. The minaret of the Khanqah of Qawsūn was also joined on the SE side as is shown by several architectural and decorative features. It was part of the Khanqah which was originally a complex with two domes. The minaret projected at the NW angle from the NW wall.⁽¹⁾ The entrance portal seems to have been at the opposite end of the facade on the street which came down from the Mukattam Hills, behind the Citadel, towards the area of the Bāb al Qarāfā.⁽²⁾ (see drawing below).



⁽¹⁾ See "The Khanqah of Qawsūn" by 'Adil Yassīn.

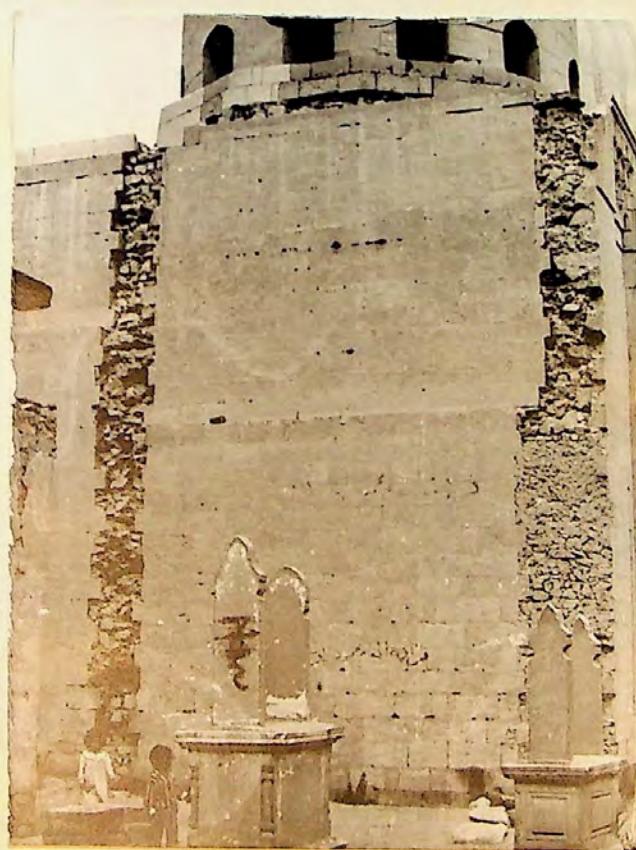
⁽²⁾ "position of Basmalas on the buildings", unpublished research paper presented by 'Adil Yassīn to Dr. Christel Kessler, in May 1970, p. 9.

It thus appears quite possible that the plan of al-Sultāniyyā was inspired by that of the Khanqah of Qawsūn, its direct neighbour. However, the minaret of al-Sultāniyyā adjoins the NW wall and not the NE one as in Qawsūn and the Southern Minaret.

Minarets projecting at corners of buildings are not seen in town architecture until the beginning of the XVIth century (Minaret of the Mosque of al-Ghawrī, 1509). However, there are five examples in the cemeteries: the three minarets in the Southern Cemetery and two in the Northern Cemetery, i.e. the minaret of the Khanqah of Tankizboughā (1362) at the foot of the Mukattam Hills (which no longer projects at a corner because of later additions); and the minaret of the Khanqah/ Madrasa/ Mausoleum of Ināl (1451/6), which also has lost its projection due to later additions.

(3) FORM OF THE COMPLEX :

Al-Sultaniyyā complex is rectangular in plan with on the SE side an iwān flanked by two domes, and 25 ml0 at the NW, a minaret projecting at the NE corner of the wall enclosure. There are architectural evidences which show that the complex had an extension to the SW side : two vertical rows of open bonding run down the SW side of the square base of the southern dome. The first one is at the SE/SW corner wall, and the second one is 5m 60 to the NW (see illustrations below).



On the SW wall, between the two open stone bonds, the smooth surface recesses one stone deep at the height of the nineteenth course. On the area after the second open bond, the recess is at the twentyfourth course, thus higher. This seems to be the indication of the height of the cells, their length being the distance (5m60) between two open bonds.

An engraving made by Roberts in 1849 of the rear facade⁽¹⁾ of al-Sultāniyyā shows that it was apparently much longer than it is actually with an extension to the SW (See ill. below).



↑
al-Siyūtī

On this engraving, it seems that the Sultāniyyā wall was contiguous to the wall of the Qubbā al-Siyūtī (which gives its name to the whole area called popularly Qarafāt al-Siyūtī);

⁽¹⁾ Roberts, Egypt and Nubia, vol. III (1849), pl. 21.

and actually the distance between the wall of the little Qubbā and the SW side of the southern dome is a little less than 5m50.

If one makes on the engraving an approximate evaluation of the extension of the wall of the rear facade to the SW one finds it to be of about 5m50.⁽¹⁾ It seems that the part which has disappeared was in two floors -at least- pierced by three small square windows on the top row, above the uncarved band of inscription; two small square windows flanking a rectangular one on the next row; and below, another rectangular window.

A decorative feature also supports the architectural evidence: the uncarved recessed inscription band, which starts on the NE side of the northern dome and runs across the whole rear facade does not end with the present end of the wall. The typical ansa which can be seen at the beginning of the present band does not exist here, clearly showing that the band was intended to continue.

On the NW side of the southern dome, five courses of below the upper cornice, there is the first open bond work in the wall. This vertical row goes down to the ground; it starts higher than the open bond work on the NW wall of the northern dome (see ill. next page.).

Moreover, on this side, at the border, stones are set in relief seeming to indicate that there was a wall which stretched from the NW edge of the southern dome towards the NW, possibly to meet the entrance portal

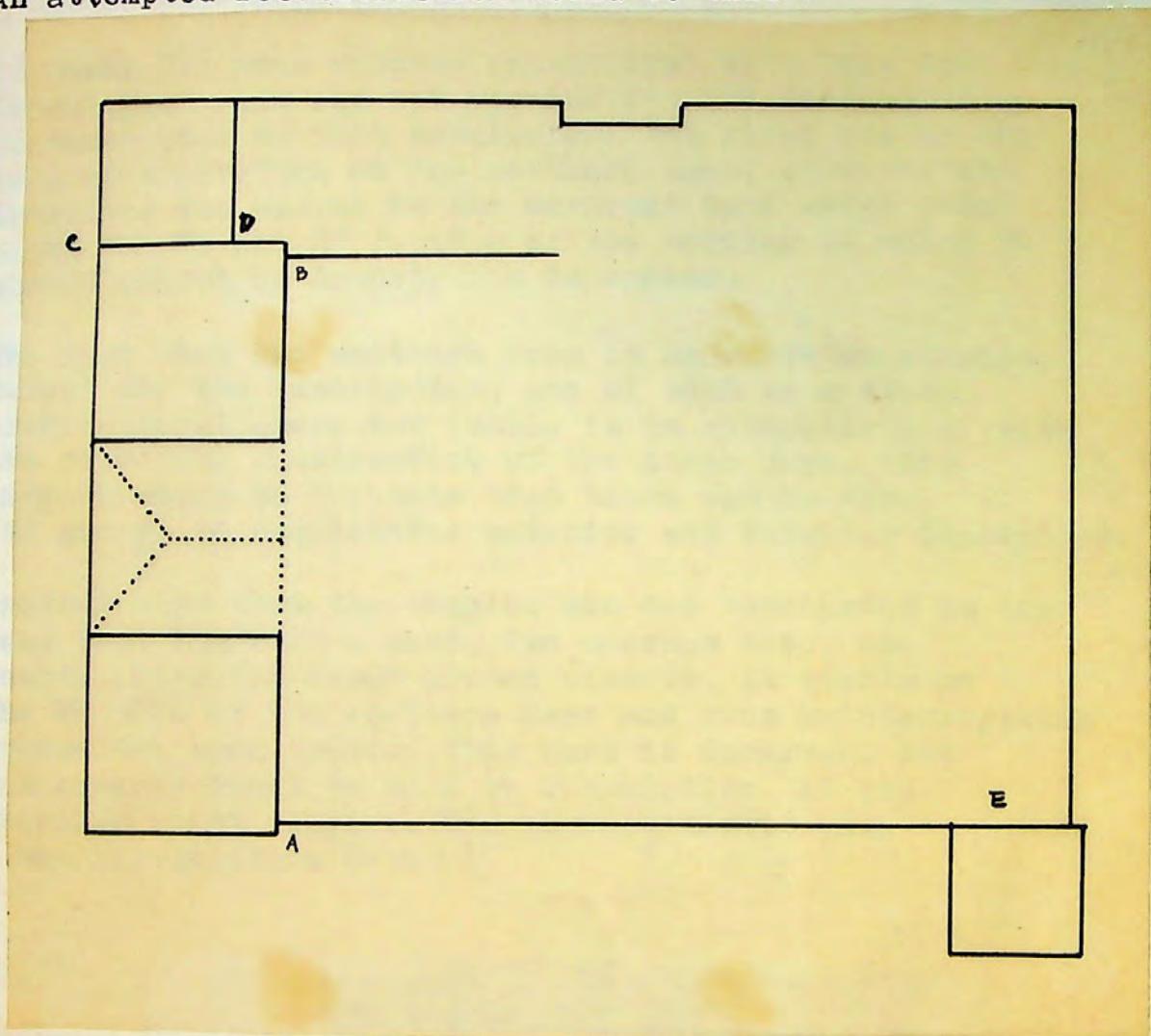
⁽¹⁾The total length of the rear facade is the sum of the north dome + the south dome + the iwān = $8.52 + 8.52 + 7.15 = 24.19$. This distance is equal to 6 cm 50 on Roberts' engraving; thus each cm. is equal to about 3^m70 in reality ($24 \text{ m } 19$ divided by $6 \text{ cm } 50 = 3 \text{ m } 70$). The total distance measured on the drawing is equal to 8 cm. Therefore it was extending of 1 cm 50 more than now; this extension amounts to about 5 m 50.

which was probably on the street side. Here also, one can clearly see the difference of thickness of one stone, it starts here ten courses of stones from the top. Was there an upper room at this level, with a ceiling at the level of the tenth row ?



I would like to present an attempted reconstruction of the complex, taking into account the numerous open problems which cannot be solved without making the necessary excavations, namely the exact position of the entrance portal (was it in the middle of the NW wall or more towards the SW corner ?), or the number of cells on the side from the SE to NW facade (were these in an uninterrupted serie or merely in two or three rows?)

An attempted reconstruction would be thus :



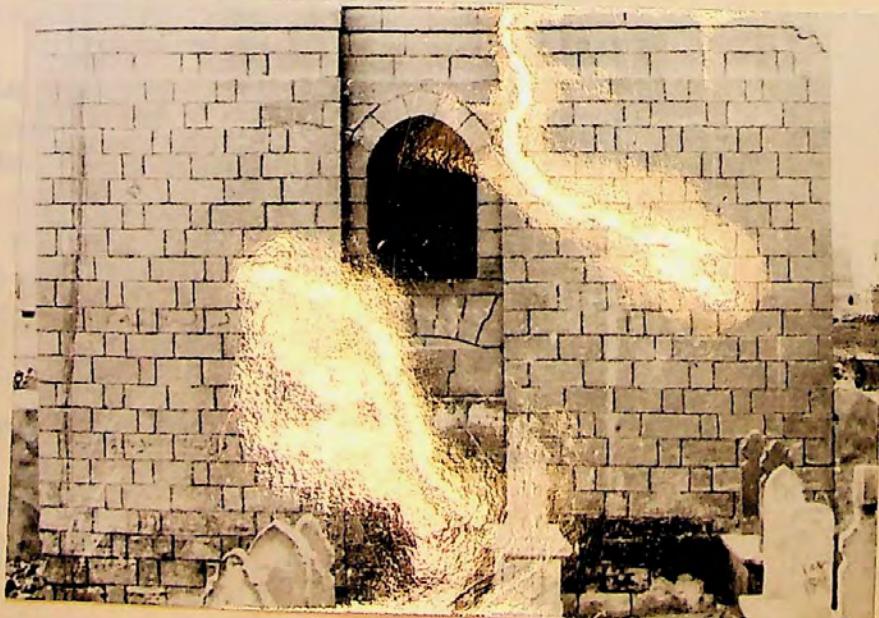
There are architectural links and open bonds at A, B, C, D, and E. These suggest that the minaret was linked by a wall to the NW side of the northern dome; that the rear facade extended to the SW and that there were two walls abutting against the SW side of the southern dome, which probably were a partition wall between the cells; furthermore there are signs that a wall ran from the NW side of the southern dome in the direction of the street side. All other suggestions or reconstructions must necessarily be hypothetical and uncertain as long as they cannot be supported by archeological evidence and excavations.

C . THE UNFINISHED ASPECT :

It seems for some unknown reason that this huge and imposing complex was not terminated. Two decorative features lead to this conclusion: the first one is the lack of decoration on the southern dome, exterior and interior; the second is the uncarved band which runs along the NE and SE facades of the complex on which we should expect an inscription to appear.

The fact that the southern dome is undecorated outside, except for the inscription, and of such an austere architectural character inside is in contradiction with the elaborate construction of the inner dome. This paradox seems to indicate that there was no time (or money) to complete the exterior and interior decoration.

Another sign that the complex was not terminated is the fact that there is a band, two courses deep, one course above the upper arched windows. It starts on the NE side of the northern dome and runs uninterruptedly across the rear facade. This band is uncarved, but was clearly meant to hold an inscription. At the starting point there is the characteristic ansa (see illustration below).



But this band unfortunately never received the inscription for which it was intended; this could have been a historical one, stating the name of the founder, the date of foundation and the purpose of the building or at least one of the three, and ^{would have} helped to solve the mystery of al-Sultāniyyā.

D . RESTORATION :

Although a project for the restoration of al-Sultāniyyā was presented in 1936, the restoration was only carried out some thirty years later, in the early 1960 s.

Creswell fortunately photographed al-Sultāniyyā before the restoration (see illustrations next pages). These are of primary importance because they show the architectural remains which have lead the restorers to choose one architectural or decorative form rather than another one, as the closest to the original appearance ~~however unusual~~.

The exterior shell of the northern dome was entirely rebuilt on the SW and SE sides, and it was completed in the NE and NW sides. The remaining rows of stone in ribs and stalactite corbeling on the NE and NW sides were probably used as the model, and the shape of the southern dome was used as a reference for the completion of the profile of the northern dome.

The collapse of the exterior shell of the northern dome in the 1860 s brought to light the only (remaining) double dome in stone in Cairene Architecture with a complicated inner structure filling the space between the two shells. Above the inner dome there is a brick and wood structure on a radial arrangement of six radial supports. At the center there is a cylindrical vertical piece of wood which holds the whole structure together (see KACC, Egypt V, 57). This is a most unusual support for a stone dome.⁽¹⁾

Creswell's valuable photographs also show the iwan before restoration. One of them, taken from a height (KACC, Egypt V, 61) shows that inside this iwan, at

⁽¹⁾ See Part III, 1 (a).

PLATE VII

KACC, Egyt v, 61



KACC, Egyt v, 57

PLATE VIII



KACC, Egypt V, 53



KACC, Egypt V, 48

the border of the arch opening on the SW side [of the original construction], eight courses remained; on the exterior NW facade of the iwān on the same side, the exterior opening of the arch was intact. From a combination of both could easily be deduced the angle of inclination of the vault on that half of the arch.

Creswell's photograph (KACC, Egypt V, 48) shows the exterior arched opening of the iwān, on the other side, nine courses above the inscription band. This was more than enough to derive the curve of the arch, the height and shape of the iwān (see illustration below).



The rectangular form of the pishtaq would be deduced from parts of a vertical band which framed the arched opening of the iwān on each side.

On the SW corner of the NW facade of the iwān, the six rows from the original construction (see KACC, Egypt V, 61) were used as a sample for the joggled stones set diagonally all around the arch.

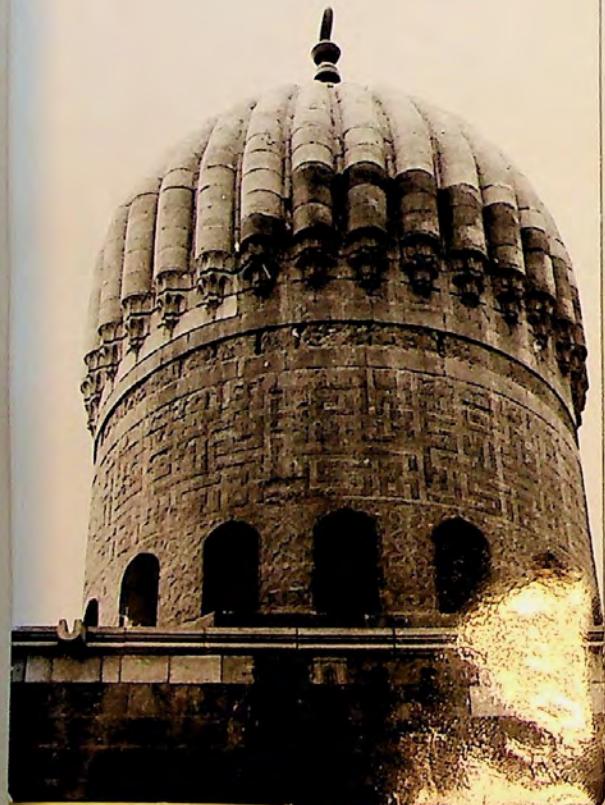
As for the angle of inclination of the vault springing inwards from the qibla wall, two rows of stones above the inscription band on the qibla wall survived, indicating the profile of the vault.

The moulding which goes all around the exterior upper part of the building was restored [probably] according to Roberts' engraving (1849), in which a moulding of this type is represented. The exterior transitional base of the domes have also been equalized and some missing stones in the dodecagonal transition zone of the southern dome have been replaced.

The restored areas may easily be detected from the whiteness of the stones used [and it is ^{now} easy to see exactly where they have been placed].

We may say in general that the restoration was carefully carried out in accordance with the architectural evidence and not according to the fantasy of some architect.

*to remainders on S. side
(See KACC photo V, 53
on p. 50)*



E . INSCRIPTIONS : EPIGRAPHIC EVIDENCE .

(1) POSITION AND CONTENT :

The inscriptions on the exteriors of the different parts of the Sultāniyyā complex are carved in low relief in the stone; they all start at the same point, possibly so that the basmala could be read from the street which came down from the Mukattam Hills towards the Bāb al Qarāfa.

On the two domes the inscription is at the upper part of the cylindrical drum and starts in the middle of the NW side. On the minaret, the two bands of inscription framing the first octagonal storey starts on the NW octagonal side.

THE DOMES : The naskhī inscription around the drum of the northern dome is similar to that around the southern dome; but on the latter, the writing is more compact, and the letters are slightly more crowded, smaller and overlapping. This band was either to take more than the Qur'ānic text, or was carved by a different hand.

The text of the inscription on both exterior drums is the same: Surat al Baqara (nº 2) verses 255 to 257, the Ayat al Kursī.

(٥٥) إِنَّمَا لِلَّهِ الْأَكْرَامُ الْقَيْوُمُ لَا تَأْخُذْهُ سَهْ وَلَا نُومٌ لَهُ مَا
فِي السَّمَاوَاتِ وَالْأَرْضِ مِنْ ذَاذِي بَتْغَعَ عَنْهُ إِلَّا بِإِذْنِهِ يَعْلَمُ مَا بَيْنِ
أَبْدِهِمْ وَمَا خَلَقُوهُ وَلَا يَبْطَلُونَ بِشَئٍ مِنْ عِلْمِهِ إِلَّا بِمَا شَاءَ وَسَعَ كَرْبَلَةَ
السَّمَاوَاتِ وَالْأَرْضِ وَلَا يَزِدُهُ حِفْظُهُمْ وَلَا عِلْمُهُمْ بِالظَّلَمِ .

(٥٦) لَا كَرَاهَ فِي الدِّينِ قَدْ تَبَيَّنَ الرَّشِيدُ عَنِّهِ الْغَيْرُ مَنْ يَكْفُرُ بِالظَّاغُوتِ
وَيُرْمَنْ بِاللهِ فَقَدْ اسْتَقْلَ بِالْعَرْوَةِ الْوَتْنِ لَا إِنْفَعَ لَهُمْ بِاللهِ كُلُّ عِلْمٍ

(٥٧) إِنَّمَا لِلَّهِ الْأَكْرَامُ أَمْنَرًا بِخَرْجِهِمْ مِنَ الْقَلَمَاتِ إِلَى النَّارِ وَالَّذِي
كَفَرُوا أَوْ لِبَأْلَامِ الظَّاغُوتِ بِخَرْجِهِمْ مِنَ النَّارِ إِلَى الْقَلَمَاتِ أَوْ لِئَلَّكُمْ
أَهَابُ النَّارَ فَمِنْهُمْ خَالِدُونَ .

Many parts of the inscription are difficult to read, others are impossible because the stone is weathered, damaged or corroded, therefore there are breaks and missing parts, but no restoration.

On the northern dome, the basmala is missing, the first words which can be seen are :

... لا إله إلا هو إله القبور لا شريكه ...

follows an unreadable part which extends almost to the end of the NE side, then :

... بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ لَا إِلَهَ إِلَّا هُوَ الْعَلِيُّ ... الظَّاغِنُ ... قَدْ

الرَّوْقَى لَا انفَعَامُ لَا وَاللَّهُ سَبِيعُ عَلَمٍ ...

On the southern dome, the inscription is in a better state :

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ لَا إِلَهَ إِلَّا هُوَ الْعَلِيُّ ... لَا شَرِيكَ لَهُ ...

نَوْمٌ لَهُ ... وَلَا حَيٌّ ... مَنْدَهُ لَا ... لَا إِكْرَاهٌ فِي ... الظَّاغِنُ ...

الرَّوْقَى لَا انفَعَامُ لَا وَاللَّهُ سَبِيعُ عَلَمٍ ...

In both cases the inscription does not end there (middle of the SE side), but only individual words or sometimes only letters are visible, interrupted by long straps of ^{stretches} broken stone as if the script had been defaced; but this cannot be the case because of the irregularity of the occurrences; the stones are simply corroded. On the last strip of the drum, from mid SE side to mid NW side, there was probably the third verse of the Ayat al Kursi (verse 257).

THE MINARET : There are two bands of naskhi inscription around the minaret. The first one is at the start of the octagon, above the transition zone, and the second one, is at the upper part of the first octagonal storey of the minaret.

The Qur'anic inscription on the first band is the Surat al Ahzāb (33) verses 40 to 44 :

(٤٠) يَا أَيُّهُ الَّذِينَ آمَنُوا اذْكُرُوا اللَّهَ ذِكْرَ أَنْتُمْ

(٤١) وَسَبِّحُوهُ كَثِيرًا حَمْدًا

(٤٠) دُعُوا الَّذِي يَعْلَمُ وَمَلِكَتْهُ بِخَرْجَكُمْ مِنَ الْقَلَمَاتِ إِلَى
النُّورِ وَكَانَ بِالْمُؤْمِنِينَ رَحْمًا
(٤٢) بِكَلِمَاتِ يَوْمٍ يَلْقَنُهُ سَلَمٌ وَاعْدُ لَهُمْ أَجْرًا كَرِيمًا
(٤٤) بِإِبْرَاهِيمَ النَّبِيِّ إِنَّا نَسْأَلُهُ شَهادَةَ مُبِينَ وَنَذِيرًا

The writing on this band is relatively in good state,
except for these illegible patches :

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ بِإِبْرَاهِيمَ النَّبِيِّ ... اللَّهُ ذَكْرُ كَبِيرٍ
وَسَجْوَهُ بَكَرَهُ وَاصْبَدَ دُعُوا الَّذِي ... عَوْ ... مَلِكَتْهُ
بِخَرْجَكُمْ مِنَ الْقَلَمَاتِ ... النُّورِ وَكَانَ ... سَلَمٌ وَاعْدُ لَهُمْ ...
كَرِيمًا بِإِبْرَاهِيمَ النَّبِيِّ إِنَّا نَسْأَلُهُ

What is unusual about this band is that the text ends
at (،) on the eighth side of the octagon,
that is before the end of the verse.

The second inscription band on the minaret is quite
difficult to decipher. The writing is in very low relief
much weathered and damaged.

The basmala starts exactly above that of the first band;
on the fifth side of the octagon there is :

... وَرَبِّنَا ...

on the sixth side :

... فَيْ حَمْوَبِرْمَ ادْخُلُوا فِي ... لَ ... اُولَاءِ الْبَابِ ...

But there are not enough words remaining to be able
to identify the Ayah. (See Concordance of Wensinck!)

INTERIOR OF NORTHERN DOME : There is a naskhi inscription
around the upper part of the cylindrical drum above
the arched windows. This band is carved in slight relief
and painted in dark brown; it is in good state of
preservation.

The text is Qur'ānic, the Surat al Nūr (24), verses 36 to 38. It starts with the basmala at the SE side, exactly above the mihrab niche. The text of the surah is :

(٣٦) فِي بَيْرَتِ اذْنِ اللَّهِ اَنْ تُرْفَعْ وَبِذِكْرِ فِرْدَوْسِهِ اَمْ

بَعْ لَهُ فِي رَبِيعِ الْعَدْدِ وَالصَّالِ

(٣٧) رِجَالٌ لَا تَلِمِيزُهُمْ تَجْرِيْهُمْ وَلَا يَبْعَثُ عَنْ ذِكْرِ اللَّهِ وَاقِمْ
الصَّلَاةَ وَاتْبِعْهُمْ ذَكْرُهُمْ خَافِرُوْنَ يَوْمَ تَقْتَلُهُمْ جُنُّهُ التَّلَوِّرِ
وَالْأَبْعَادِ

(٣٨) لِجَنَاحِيْلِ اللَّهِ اَمْهَنْ سَاعِدُوْنَ وَبِزِبَرِهِمْ مِنْ فَنَاهِ وَاللهِ
بِرْزَهُ مِنْ بَارِعِهِمْ بَغْرَهَابِ

This inscription ends with :

صَلَقُ اللَّهِ الْعَظِيمُ وَرَسُولُهُ الْكَرِيمُ

There are minor variations in the spelling of some words as indicated in pencil above the text.

that is the
classical
spelling.

THE IWĀN : At the springing of the vault there is a large band of naskhi script on a floral background of thin scrolls. This band is carved in stone, but is reminiscent in style and design of earlier stucco bands.⁽¹⁾

⁽¹⁾ Inscription band in stucco around the upper part of the mihrāb in the Madrasa of al-Nāṣir Mohamed ibn Qalāqūn (1295/1303) - illustrated in Wiet and Hautecoeur "Les Mosquées du Caire", II, pl. 81;

Large stucco band of inscription on a floral ground of very fine scrolls with double grooving, around the exterior drum of the mausoleum of Zayn al Din Yūsuf (1298);

Inscription band in stucco around the two drums of the Salār and Sangar al Gawlī complex (1303/4); and the stucco band in the actual courtyard of the same complex, illustrated in Wiet and Hautecoeur, pl. 97 (2).

This inscription, also Qur'ānic, starts with the basmala on the right side of the iwān, outside. It is Surat Yāsīn (36), verses 1 to 11 :

(١) بس

(٢) وَالْقُرْآنُ الْكَلِمُ

(٣) إِنَّمَا مِنَ الرَّبِّينَ

(٤) عَلَى سَرَاطِ مُتَفَجِّمٍ

(٥) تَنْزِيلُ الْعَزِيزِ الرَّحِيمِ

(٦) لَتَتَذَرَّقُوا مَا اتَّزَرُوا فَهُمْ فَرَّاقُونَ

(٧) لَقَدْ هُوَ الْقَوْلُ عَلَى أَلْتَرَاهُمْ فَلَمْ يَأْتُوهُنَّ

(٨) إِنَّا جَعَلْنَا فِي أَعْنَاقِهِمْ أَنْدَالٌ فِي أَلْأَذْقَانِ فَلَمْ يَفْعُلُوهُنَّ

(٩) وَجَعَلْنَا مِنْهُمْ بَيْنَ أَيْمَانِهِمْ سَادِمَاتٍ خَلَفَهُمْ سَدَادٌ فَأَغْشَيْنَاهُمْ نَهَارًا لَا يَبْغُونَ

(١٠) دَسَادٌ عَلَيْهِمْ اتَّزَرُهُمْ أَمْ لَمْ تَنْزِرُهُمْ لَا يَأْتُوهُنَّ

(١١) إِنَّمَا تَذَرُّ مِنْ أَتَّبَعَ الذِّكْرَ / وَهُنَّ الظَّاهِنُونَ بِالْغَيْبِ فَبِئْرَهُ بَعْفَرَهُ وَاجِرَ كَرِيمٍ

This is as much as can be identified because the inscription stops abruptly at the word (الذِّكْر), and a plain stone band, inserted by the restorers continues up to the other end of the iwān.

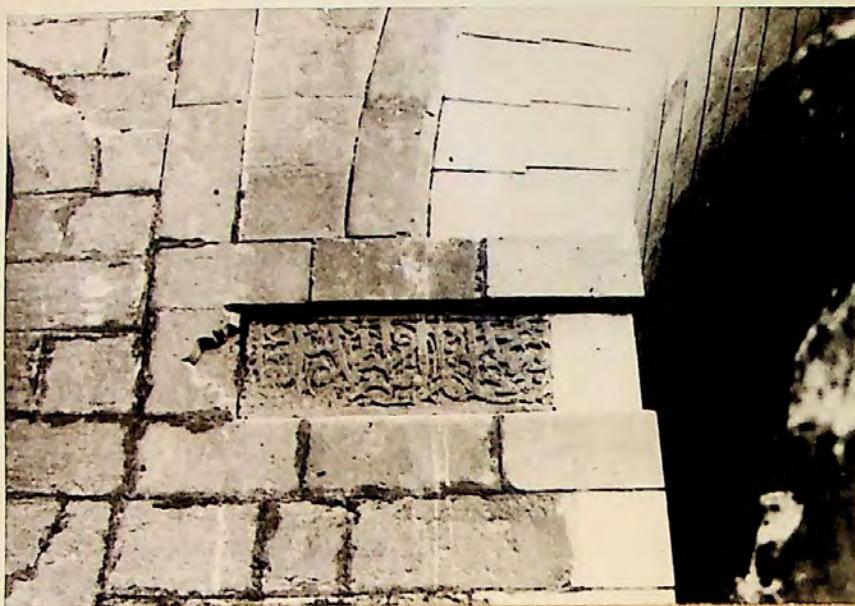
On the outside of the left side, up to the ansa marking the end of the inscription there is :

محمد خاتم النبیین وَالْحَمْدُ لِلّٰهِ رَبِّ الْعَالَمِينَ

the last two letters are broken (see ill. on following page).

What was between the break and the end of this inscription ? Was it more Qur'ānic verses or a historical inscription ? The verses of the Ayat Yāsīn which are usually chosen are from verses one to eleven, thus there was a complete side of the iwān which could have been decorated with a

valuable historical inscription. A clue to this suggestion is the presence of the name of Mohamed before the end of the band (see ill. below).



In the Qur'an there are only four occurrences of the name of Mohamed, and the present arrangement of words is not found among them. Therefore, its appearing here would seem to indicate that the text was not Qur'anic in the latter part of the inscription, but rather that it contained a Dou'a or blessing usually coming after the name of the founder or /and the date of foundation.⁽¹⁾ Was this part intentionally destroyed or is time and weather entirely responsible ?

⁽¹⁾ Among the numerous inscriptions collected by Van Berchem in his CIA, I, there are numerous examples of the use of Dou'a's including the name of Mohamed to conclude historical inscriptions as for example: on a band over the west facade of the Khanqah of Baybars al Gashankir (1309/10), (inscription 108 - year 709 H.p.162); on the facade of the Mosque of the Emir Ahmad al Mihmandar (1324/5), (inscription 116 -year 725 H.p. 172); at the right of the mihrab on a marble plaque in the Mosque of the Emir Altumbugha al Maridani (1339/40), (inscription 133 - year 740 H.p. 192); on the porch of the south facade of the Mosque of the Emir Aslam al Silahdar (1344/5), (inscription 136 - year 746H.p.195); inside the Mausoleum of Sultan Hasan (1356/62), (inscription 169 -year 757/64 H; p. 269) on the wooden band; on the porch of the Madrasa of Umm al Sultan Sha'bân (1368/9), (inscription 178 -year 770 H. p.279).....

The second inscription inside the iwān is on a rectangular plaque above the mihrāb. The script, in two lines, is on a simple thin scroll background, with a few individual leaves or dots or trilobes set in the empty spaces.

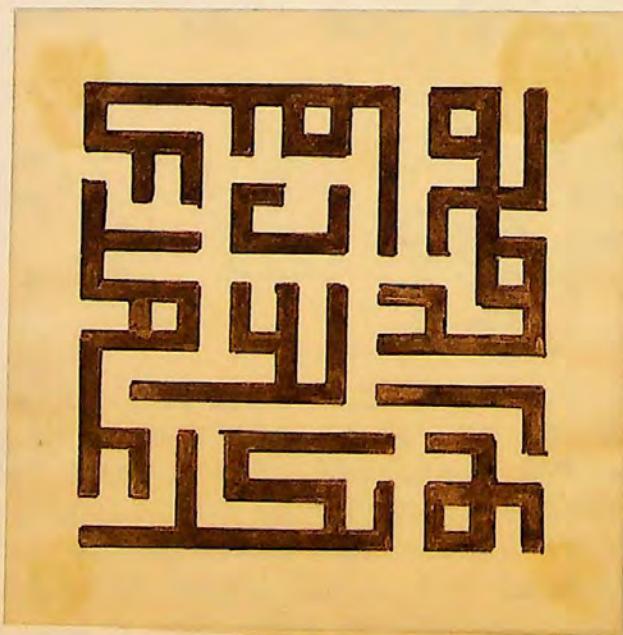
The text is Qur'ānic: the Surat al Ikhlās (112), verses 1-4.

TYPES OF WRITING :

-a- SQUARE KUFI.

On the northern dome of al-Sultāniyyā, all around the upper part of the cylindrical drum, above the series of windows, there is an uninterrupted band six courses of stone in height, carved in low relief with a decorative script "entièrement composé de lignes droites s'assemblant entre elles par des traits toujours parallèles les uns aux autres et se coupant à angles droits et sans mélange d'aucun contour arrondi":⁽¹⁾ square kufi.

The base of the repetitive grid is a square which is repeated around the drum with no marked separation between two squares. Its content is a square combination of the following names (starting from the upper right corner of the square): Mohamed, Abu Bakr, 'Umar, 'Uthmān, and in the center 'Alī (see drawing below).



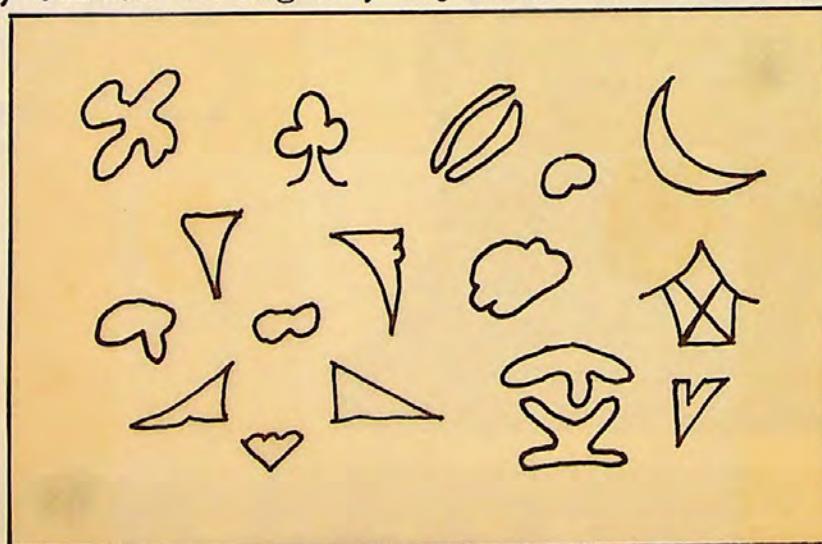
⁽¹⁾This definition is Marcel's in the Description de l'Egypte quoted by Walter Innès in "Inscriptions Arabes en caractères carrés", Bulletin de l'Institut Egyptien, 3ème série, № 1, Année 1890.(Le Caire: Imprimerie Nationale, 1891}, p. 61.

-b- NASKHĪ

There are three main decorative types of naskhī thuluth in the different units of the complex of al-Sultāniyyā. The first type is found on the two bands framing the first octagonal storey of the minaret, and on the two circular bands around the upper parts of both the northern and southern domes. A variation of this type is seen on a band of inscription inside the northern dome (see illustrations next page).

The main common features of these five bands of inscription are the following :

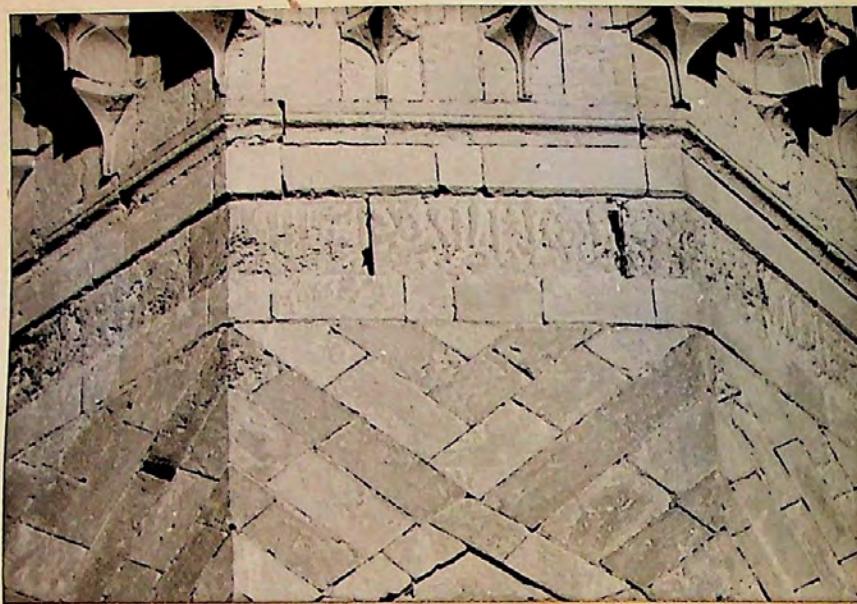
- The writing is arranged mainly on one line, although some letters climb up and fill the empty spaces; especially so in the inscription inside the northern dome where the letters are less crowded and larger than on the exterior bands.
- All the lam alif (ل) are alike in the design of their shafts which are slightly curved.
- The spaces which are not filled by writing are decorated with small individual elements : trefoils, dots, oval shapes, crescents, curved triangles, stylized leafs ... (see drawing below).



The second type is a more elaborate one which is found only on the band which runs around the qibla iwān. This is a very fine inscription in which the letters are in relief relatively to the background. The script is set on a thin loose scroll with small knots and leafs sometimes attached to it, which come out in the spaces left empty by the letters (see illustration on page 63)

PLATE IX

FIRST TYPE

MINARET: 2nd band

NORTH DOME

PLATE X

FIRST TYPE

SOUTH DOME



INSIDE OF NORTH DOME



The inscription is on one line with occasional letters and small words climbing to the upper line; the shafts of the alifs and the lāms have pointed serifs, very reminiscent of the stucco inscription around the domes of Salār and Sangar al Gawlī (1303/4) and those in the Kufi inscription, also in stucco, around the main iwān in the Madrasa of Sultān Hasan; and also of the alifs and lāms in the XVth century Qur'āns.

The delicacy of the script and the fineness of the background scroll are more typical of inscriptions carved in stucco than in stone, and the present band seems to be a stone adaptation of a stucco frieze.

The third type is the most elaborate script, it covers the rectangular tabula plaque over the mihrāb in the iwān (see illustration below).



Here the writing is arranged in two lines and the reading goes alternately from below to above. The shafts of the alifs and the lāms are long and vertical, they end in small serifs and fill the whole vertical space of the rectangular panel; they divide the decorative space and the upper line of writing is arranged relatively to these shafts, either landing in between or being cut in the middle by a long shaft :



The inscription is on a foliate scroll ground consisting of a double scroll with small dots and trefoils attached to its curvilinear parts which come in spaces not filled by letters.

The style of this inscription, its composition and decoration is reminiscent of the faience plaques in which the script is painted in white over a turquoise or cobalt blue glaze.

Due to the preceding study we can assume that all the inscriptions in the building are made by craftsmen of the same school.

-c- PLAITED PSEUDO -KUFI :

Above the cavetto which marks the end of the transitional zone inside the northern mausoleum there is an uninterrupted band of plaited pseudo kufī below the windows. This band, underlined at the top and bottom by a double line, consists of a decorative motif in repetitive compartments.

Period of occurrence?

This frieze is close in style to the pseudo-kūfī bands in which the alif lāms are plated, though often here, knots replace the plaiting. They mark the separation between two compartments in which the central motif is a combination of three elements which intersect and interlace on a closed circuit. Inside each compartment there are small crescent-like leafs or trefoils filling the corners (see illustration below).



CONCLUSION :

At present none of the inscriptions convey historical information or any clue to precise dating as they are all Qu'ānic. The choice of the ayyas seems to indicate that the Sultāniyyā was a funerary building and a khanqah.

The ayyat al Kursī, which is on the two domes of al-Sultāniyyā, decorates the exterior of twenty one domes of the Mamlūk period.⁽¹⁾ The sura Yasīn is used on three dome exteriors from verses one to eleven. This surah is used (but from verse one to fourty) all around the enclosure wall, minaret and dome of the Khanqah of Qawsūn in the Qarāfāt al Kubrā , the direct neighbour of al-Sultāniyyā. In al-Sultāniyyā, this surah from verses one to eleven is used inside the iwān.

⁽¹⁾ See "Adil Yassīn's paper " The Basmalas", Table.

Another interesting analogy is that on the minaret of the Khanqah of Qawṣūn, on the upper band of inscription, there is the Surah al Ahzāb, verses 41 to 43, followed by the dating inscription.⁽¹⁾ The same surah and the same verses (41 to 43) ~~are~~ chosen to decorate the lower inscription band on the minaret of al-Sultāniyyā.

One could attribute the similarities in the texts to mere coincidence or to neighbourhood; but the position of these ayyas differ widely. It is more likely that from the choice of these texts, which are not usually seen in association, one could deduce a similar institution or/and that these texts were fashionable at a certain period.

⁽¹⁾ Mrs. Layla Serag al Din read and identified these two inscriptions.

PART II : LITERARY AND HISTORICAL EVIDENCE.

As all the inscriptions on al-Sultāniyyā are so inconclusive (none of them give the date, the purpose of the building or the name of the founder), Part II will turn to the literary and historical sources to find them.

This monument is mentioned nowhere by al-Maqrīzī, neither under his Dhikr al Qarāfā (Khitāt II, p. 442-4), nor under his lists of mosques, madrasas, khanqahs or turbes... This has led Creswell to the conclusion that the building was erected after c. 1425 (when al-Maqrīzī finished his Khitāt) because otherwise such a conspicuous building would have been mentioned and described; but even 'Alī Moubārak who writes his Khitāt al Tawfiqiyā al Gadidā at the end of the XIXth century does not mention al-Sultāniyyā either, and it certainly existed in his time.

In the works of the historians covering the Mamlūk period, al-Sultāniyyā was probably referred to under another name. Unfortunately, after a careful examination of the sources, I have been unable to identify any of the names as referring to it. Many emirs and princesses (khawands) are known to have built in the Qarāfā al Kubrā tombs and khanqahs which have not yet been identified. The Sultāniyyā may be one of them: either the khanqah of Yalbougha al Nāṣirī (thus called in Ibn Iyās,⁽¹⁾ while in al-Maqrīzī he is called Yalbougha al Turkumānī⁽²⁾ who married the last wife of Sultān Hasan, Khawand Tou'lou Tamr (خواندو تمر) after he murdered the Sultān;⁽³⁾ or the tomb of Khund Sha'ā, a sister of both Sultān Hasan and Sultān Barqūq who had a tomb in the southern cemetery. It may also have been the mosque (not named in al-Maqrīzī's list, but which comes in a footnote p. 545 of Sulūk I) built by a group of Persians outside Bāb al Qarāfā;⁽⁴⁾

⁽¹⁾ Ibn Iyās, Kitāb Tarīkh Masr al Mashhoūr bibadā'i al zuhōur fi waqā'i al douhōur, I (Cairo: Boulaq, 1311 H.), p. 207.

⁽²⁾ Al-Maqrīzī, Sulūk II, p. 540.

⁽³⁾ Al-Maqrīzī, Sulūk II, p. 562.

⁽⁴⁾ See Zettersteein p. 226.

or the khanqah of the Emir Taqazdumur⁽¹⁾; or that of Saqtumur al Dimishqī⁽²⁾ who built a khanqah outside Bāb al Qarāfā and who may have married Khawand Samrā after the death of the Sultān al-Ashraf Sha'bān⁽³⁾; or the khanqah of the Emir Arghoūn al 'Alā'i who "was burried in his khanqah in the Qarāfā" ...⁽⁴⁾

Unfortunately, in all these texts, there is only a mention of the ownership, without any detail as to the shape of the building, its architecture or its exact position... which makes the process of identification of person and building quite hypothetical.

The identification favored until now and adopted by the Department of Antiquities since 1938 is that the Sultaniyya is the tomb of Khawand Samrā. This argument is based on the quotation in Ibn Iyās, I, p. 339 which states that the tomb of Khawand Samrā is "towards the entrance of the mosque of Qawsūn which is outside the Bāb al Qarāfā..."⁽⁵⁾

This conclusion has also been arrived at by the editor of Taghri Bārdi's "al Nūgūm al Dhahirā", XII,⁽⁶⁾ commenting in a footnote on the following passage⁽⁷⁾: ..."the Emir Bishtāk al Sha'bānī al Dawādār who was searched by the Emir Djaqmaq took refuge in this tomb, when he saw that he was going to be caught, he threw himself from a high place and fractured his skull. Djaqmaq caught him and took him to the house of the Emir Nawrūz al Hāfidhī and from there he was taken the same night to Alexandria where he was jailed..." The editor remarks that the tomb in which the Emir Bishtāk took refuge was that of Khawand Samrā, which, he adds, should be identified with the Turbā al-Sultāniyyā (Index numbers 288 & 289) on the basis of Ibn Iyās' text.

⁽¹⁾ Al-Maqrīzī, Suluk II, p. 688 & 698.

⁽²⁾ Called 'Ashqutmūr al Maridānī in Ibn Iyās I, p. 234-5.

⁽³⁾ Al-Maqrīzī, Suluk II, p. 444.

⁽⁴⁾ Al-Maqrīzī, Suluk II, p. 748.

⁽⁵⁾ "التي تجاه بباب جامع قرمون الذي هو خارج بباب الغرافه..."

⁽⁶⁾ This reference was given to me by Miss Shahira Mehrez.

⁽⁷⁾ Gamal al-Din al Mahasin Yusuf Taghri Bardi, Al Nūgūm al Dhahirā fi Muluk Masr wa'l Qāhira, XII (Cairo: Wizarat al Thaqafa wa'l Irshād al Qawmi), p. 276.

He goes on saying that Khawand Samrā was the wife of the Sultan al-Ashraf Sha'bān and the mother of his son Ahmad; and that in the absence of historical texts, and on the basis of its architectural features, the Sultāniyyā should be placed among the constructions of the Bahri Mamluk period of the second half of the VIII th century H: the XIV th century A.D.

The fact that no waqfīyyā in the name of Khawand Samrā could be found ~~considerably~~ weakens this attribution, for if she had erected such a significant construction as the Sultaniyya, there certainly would have been some records of it.

Another major objection is the determination of the position of the Turbā of Khawand Samrā. Actually, the mosque of Qawsūn has disappeared, and the only parts of the construction surviving are one of the domes and the minaret of the khanqah. Al-Maqrīzī states in Suluk II, p. 748 that the Khanqah of Qawsūn was inside the Bāb al Qarāfā while the mosque was outside it. The Turbā of Shawand Samrā, stated to be towards the entrance of the Mosque of Qawsūn outside the Bāb al Qarāfā, was not towards the NE where the Sultāniyyā actually is,⁽¹⁾ but rather towards the SW where the mosque of Qawsūn possibly was.⁽²⁾ Thus the indicated position of the Turbā of Khawand Samrā does not coincide in any way with that of al-Sultāniyyā.⁽³⁾

⁽¹⁾ See Plan p. 72

⁽²⁾ This is the subject matter of a paper -still unfinished- which will be presented by 'Adil Yassīn to Dr. Kessler.

⁽³⁾ Its position seems to coincide with a mausoleum which can be seen in illustrations of the 1860 s , but which has collapsed now. It had a ribbed dome, each rib ending in a ring. The fact that this particular fallen mausoleum was the Turba of Khawand Samrā is a mere suggestion and has yet to be proven; as so many mausoleums have disappeared in this area in the last century.

The only source which names al-Sultāniyyā is the Waqfeyyā of Messīh Pāshā dated 1071 H. (1660 A.D.) found in the Archives of the Ministry of Waqfs (n° 2836). This Waqfeyyā has a twofold importance for the building under study as it delimits the exact position in relation to the Messīh Complex erected in 1575; and it clearly names the building ...p. 47..." to the turbā of the deceased mother of Sultān Hasan known as al-Sultāniyyā..." and on p. 42 ..."al madrasa of Umm al Sultān Hasan..."

From a careful study of the text of the Waqfeyyā of Messīh Pāshā the limits of his complex (now reduced to minaret and portal of the mosque) can be exactly determined in relation to the neighbouring buildings. This complex must have been a prominent one. 'Alī Moubarak states that the street called al Messīhiyā is called so in reference to the Wazīr Messīh Pāshā who built in 983 H. a mosque for the Sheikh Nour al-Din al-Qarāfī one of the 'Ulamā' of his period in whom he believed strongly. Messīh Pāshā endowed this mosque as a waqf to the Sheikh and set him as its nādhīr. The Sheikh, at his death, was burried in it and that is the reason why the mosque at present bears also his name together with that of Messīh Pāshā.⁽¹⁾

From pages 23 to 28 of the Waqfeyyā of Messīh Pāshā there is an enumeration and description of the different elements of the complex which included a mosque with a riwāq, a sabil with a kuttāb above (called here Maktab), a sahrīg, a ribāt, habitations and housing facilities, underground store rooms, a turbā and a rab' which was an independent unit separated by the main street from the rest of the complex.

The cardinal determination of each side of the Messīh complex is made on p. 47 of the Waqfeyyā where it is stated that: " the southern side ends by the turbā of the deceased mother of Sultān Hasan known as al-Sultāniyyā; the northern side ends at the main street which separates the present construction from the rab' ... On that side there

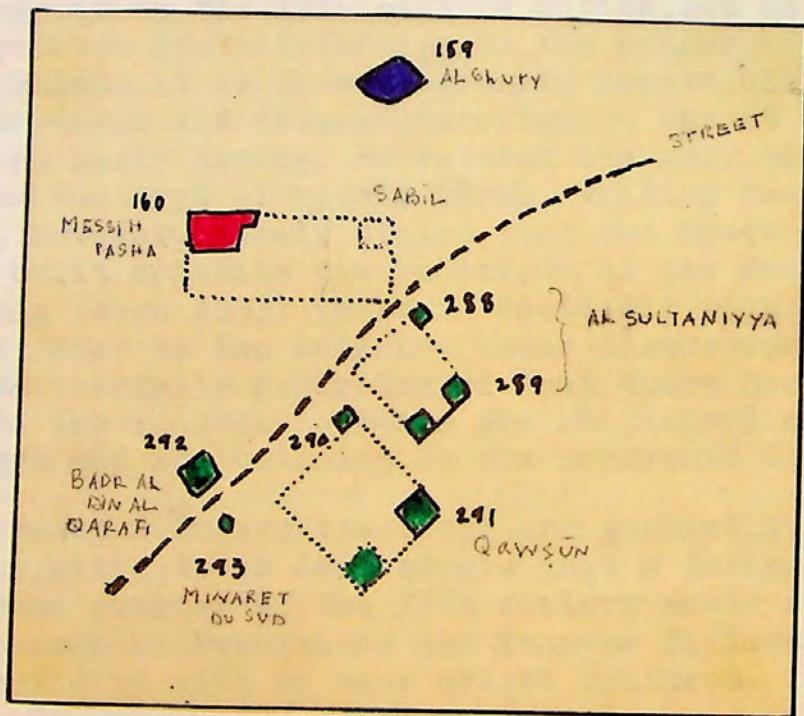
⁽¹⁾ 'Alī Moubārab, Vol. II, p. 112 under title of Shāri' al Messīhiyyā.

are the three sides of the sabil and its copper windows and the faces of the kūtāb which is above the sabil; the windows of the ribāt, the windows of two rooms and those of the riwāq, previously mentioned; on the eastern side, the complex ends at a small street which marks the separation between it and a house known as Beit al 'Abd and a turbā known as al Barīdī, (it also) leads to the turbā al-Sultāniyyā, previously mentioned, and to a distorted hōud which is there and other things. On that east side there is one window of the sabil, the place where the cistern (sahriq) discharges its waters, and the rooms; and there are two floors above and one of the faces of the kūtāb. The Western side ends at a small street which marks the separation between this complex and the Madrasa of the Sheikh Nour al Din previously mentioned...."^(١)

On pages 53 and 140 it is clearly stated that the Sabil/Kutāb of the Messīh Pāshā complex is in front of the mosque of Qansūh al Ghourī. (المقابل/في مقابلة)

"... وحيط يحيى هذا المكان المرصوف اجهالاً وتفصيلاً وما اشتمل عليه" ^(١)
 ويصره حدود أربعة الحد القبلي ينتهي إلى تربة المرحومه أم اللطان من طاب ثراه المعروفة باللطانية والحد الجنوبي ينتهي إلى الشارع الاعظم الفاصل بين ذلك وبين الرابع الآفاق وصفته وتجده أنت مولانا صاحب العادة المعروفة به أعلاه وام عزه ورفعته وعلاه وهي لهذا الحد واجهات البيبل الثالثة وشياطيكه الناس وواجهات المكتب التي علوها وشياطيك
 الرابط وشياطيك الخلوتين والرارق المذكور أعلاه والحد الشرقي ينتهي إلى رقاد ملوك فاسيل بين ذلك وبين البيت المعروف بالعبد والتربة المعروفة بالبريدى يتوصى منه إلى التربة الطانية المذكورة والجوانب الاعوج الذي هناك وغير ذلك وفيه أحد شياطيك البيبل وصاحب الصحن والخلوة والطبقتان على ذلك واحدى واجهات المكتب المذكور والحد الغربي ينتهي إلى الرقاد الفاصل بين ذلك وبين مدرسة مولانا البغدادي نور الدين المذكور أعلاه ..."

If we refer to the Map established by the Survey of Egypt in 1948 and make an attempt to reconstruct this huge complex, including all the elements which are enumerated on the northern and eastern faces, and taking into consideration that the sabil/kuttab was in front of the Mosque of Qansūh al Ghouri, we have the approximate extention of the complex on the NE side. It follows that the Messīh complex was the direct neighbour of the building named and attributed to the Mother of Sultān Hasan (See drawing below).



In 1919 in his Brief Chronology of Muhamedan Monuments, Professor Creswell made a brief study of the Sultāniyyā, and although it had already been illustrated since 1849 (before the collapse of the northern dome),⁽¹⁾ and presented with a section and plan by Franz Pasha in 1896 (after the collapse);⁽²⁾ Creswell was the first one to go deeper in the study of its various unusual architectural and decorative features beside the unique one of the double domes in stone which had already been drawn in section and remarked upon by Franz Pasha who dated the monument known as "Umm as-Sultān Hasan" to the XV th century.⁽³⁾

Creswell agrees on the XVth century dating, and on that basis he refutes its attribution to the mother of Sultān Hasan. He thinks it is chronologically impossible since the architectural and decorative evidence cannot fit with such an early dating. He refutes the only historical source, the Waqfeyyā of Messīh Pāshā, writing that ..."this Waqfeyya , however, merely states that the Mosque of Messīh Pāshā was built opposite the Mausoleum of the Mother of Sultān Hasan (born 1333) which is decidedly vague and may or may not refer to the building under discussion ..."⁽⁴⁾ But we have carefully demonstrated that there can be no doubt as to the identity between the Sultāniyyā named in the Waqfeyyā and the building we are concerned with.

There are seven main architectural and decorative arguments by which he attempts to demonstrate that a dating earlier than a second quarter of the XVth century would not be sound; although he recognizes the immense difficulty in dating a building with so many unique features.

The most outstanding feature is the architectural construction of the twin double domes. This feature, although common in Persia in brick domes, is unique in Egypt especially in stone.

⁽¹⁾ Roberts, Egypt and Nubia (1849), III, plate 21.

⁽²⁾ Julius Franz Pasha, Die Baukunst des Islam (3 Band, Zweite Häfte; Darmstadt: Verlag von Arnold Bergsträsser, 1896), p.129, figs. 175 & 176.

⁽³⁾ Ibid., p. 78-79.

⁽⁴⁾ Creswell, Brief Chronology, p. 128.

Further research has shown that the idea of a double dome existed in Egypt in the mid XIV th century; as it seems that the brick dome of the Mausoleum of the Emir Sarghatmish dated 1356 was a double one.⁽¹⁾ The architectural concept of a double dome disappears totally after that time to reappear only in the later turkish period in the wooden domes of the palaces and houses of the 17th and 18th century as in Bayt al Sihāymī (1648-1796) or in the House of Mahmūd al-Shabshīrī (17 th century).⁽²⁾

There are only two examples in Egypt of the treatment of external ribbing of domes resting on stalactite corbels: the two domes of al-Sultāniyyā and the dome of Yūnus al-Dawādār (before 1382). Creswell believes the latter to be the first example, and he writes that Yūnus "further resembles the one under consideration by having arabesques carved on the exterior between the windows of the drum."⁽³⁾ A close study of this arabesque motif will attempt to show that the floriate motif around the drum of Yūnus is a debased interpretation of the motif around the drum of the northern dome of al-Sultāniyyā.⁽⁴⁾

Creswell presents four more arguments to prove a second quarter of the XV th century for al-Sultāniyyā: the stalactite mihrāb with carved spandrels, the iwān covered by a "tunnel vault" in stone; the bevelled transition of the minaret which is inlaid in relief in a different color of stone and carved with arabesques; and finally the "coquilles".

For each feature he finds a precedent in the XV th century: a parallel to the stalactite mihrāb is that of the Mosque of al-'Aynī (1411); the first decorated spandrels though he finds the pattern quite different is the mihrāb of the Madrasa of Qaraqoga al Hasanī (1441-2); the only two

⁽¹⁾ See Part III, p. 86-88

⁽²⁾ This information was given to me by Bernard Maury, the architect who is presently working in the Franco-Egyptian Project for the Study and Restoration of the Islamic Palaces under Professor Lézine.

⁽³⁾ Creswell, Brief Chronology, p. 128.

⁽⁴⁾ See Part III, p. 123

examples of such "tunnel vaults" are in the Madrasa of Barqūq (1386) and in the Ribāt of Sultān Ināl (1451-56) ("...." which appears to have been so roofed although the present vault is mainly of brick"....).

For the minaret, the earliest bevelled transition in relief is on the Mosque of Mogholbāy Tāz (1466). Finally, the earliest "coquilles" found in the niches of pendentives are those of the Mausoleum of the Mosque of al-Mu'āyyad (1421) and in the Mausoleum of Barsbāy (1432).

Further research on the very brief preliminary study made some forty years ago by Professor Creswell has disclosed some clues allowing one to present suggestions for a possible alternative; bringing to light mid XIV th precedents for the unusual architectural and decorative features of al-Sultāniyyā.

The stalactite mihrāb seems to be inspired from the side niches of the porch of the Madrasa of Sultān Hasan (1356-62);⁽²⁾ the low carved floral motif in the spandrels of the niche can be seen as early as 1349 and 1355 around the portals of the Mosque and Khanqah of the Emir Shaykhū, and around the portal of the Madrasa of the Emir Ṣarghatmish (1356), as well as around the mihrāb niches in both the main iwān and the mausoleum of the Madrasa of Sultān Hasan illustrated by Herz Bey.⁽³⁾

As for the "tunnel vault" covering the iwan, it existed in Cairo on a small scale since 1087 in the fortified construction and the walls of Badr al Djamālī; and it was commonly used in the XIVth century.⁽⁴⁾

For the use of different colors of stone to mark the edges of the bevelled transition of the minaret, there is an identical treatment on the original minaret of the Madrasa of Sultān Hasan;⁽⁵⁾ while the use of 'ablaq' on

⁽¹⁾ Creswell, Brief Chronology, p. 128.

⁽²⁾ See Part I, p. 10-21

⁽³⁾ Max Herz Bey, La Mosquée du Sultān Hassan au Caire, ouvrage publié par le Comité de Conservation des Monuments de l'Art Arabe (Le Caire: Imprimerie de l'Institut Français d'Archéologie Orientale, 1899), plate XX, figs. 5,6,7 & 8 ; and figs. 12 & 13. - See Part III, p. 10.

⁽⁴⁾ See Part I, p. 8

⁽⁵⁾ Max Herz Bey, La Mosquée du Sultān Hassan, plates VI & VIII.

minarets is first seen on both minarets of Shaykhū where also the low carved floriate motif of the same type of arabesque can be seen for the first time inside and outside the keel arches.⁽¹⁾

Creswell is right in stating that the "coquilles" are not to be found until much later in the niches of the pendentives, but inside the northern mausoleum of al-Sultāniyyā, these "coquilles" are not a structural part of the pendentive, they are merely one row of decorative niches quite similar to those crowning the cenotaph of the Emir Sarghatmish, or those on the porch of the Madrasa of Sultān Hasan.⁽²⁾

Therefore, we see that there is no main architectural or decorative argument strong enough to refute so definitely the attribution of this "enigmatic building" to the Mother of Sultān Hasan and moreover, nothing in it which is particularly characteristic of the Mamluk architecture of the second quarter of the XV th century.

It is interesting to point out that Creswell's second quarter of the XV th century dating has generally been adopted by most European writers after 1919, although al-Sultāniyyā is dated in the Index towards the end of the XIV th century in the line of thought of the Department of Antiquities⁽³⁾ that it is the tomb of Khawand Samrā, the last wife of the Sultan al-Ashraf Sha'bān (assassinated in 778 H: 1377).

But even if they disagree with Creswell's dating, he seems to have successfully destroyed the belief in the attribution of this building to the Mother of Sultān Hasan.

Creswell's underlying assumption is that the exterior aspect of the slightly bulbous domes resting on stalactite corbels of al-Sultāniyyā is strongly influenced by that of the Mausoleum of Timūr in Samarkand. According to him⁽⁴⁾

⁽¹⁾ See Part III, p. 121

⁽²⁾ See Part I, p. 13-14

⁽³⁾ Shared by the editor of Taghri Bārdi, XII, p. 276.

⁽⁴⁾ KACC, MAE, I, p. 164.

the Gur-Emir was built in 1404-5 by an architect from Isfahan who signed in naskhi over a faience plaque in the upper part of the main facade.⁽¹⁾

Many scholars agree on this dating of the Gur-Emir;⁽²⁾ except Wiet who dates it to 1411;⁽³⁾ Ernst Diez⁽⁴⁾ followed by Werner Speiser⁽⁵⁾ and Katharina Otto-Dorm⁽⁶⁾ who state that it was built after Timur's death by his grand-son Mohamed Sultān Mirza between 1490 and 1504.

see Michael Meliade

A dated example of ribbed dome resting on stalactite corbelling crowning a very high drum exists in the Mausoleum of Yunūs al-Dawadār in Cairo (1382); yet, due to his belief in a direct influence from Samarkand to Cairo, Creswell insists on dating the Sultāniyyā domes to after 1404-5.

All those who have written about al-Sultāniyyā have wondered about its presence in Cairo; they always stress the foreign origin of its architecture tracing it back to the "bulbous or Tatar cupola, introduced from Turkestan, Persia and Mesopotamia";⁽⁷⁾ or to Indian influence, to Agra and to the tomb of Turglak-Shah in Delhi, as did Franz Pasha.⁽⁸⁾

This unusual building either called al Turba al-Sultāniyyā or the Mausoleum of Umm-as-Sultān Hasan has attracted the attention of numerous travellers and of a few scholars who were seduced either by its esthetics or by its puzzling character.

⁽¹⁾ Claude Prost, Les Revêtements Céramiques dans les Monuments Musulmans de l'Egypte (Le Caire: Institut Français D'Archeologie Orientale, 1916), p. 8-9 : حمود الدين العسقلاني

⁽²⁾ E. Blochet, "Les Inscriptions de Samarcande," in the Revue Archéologique, I (1897), p. 69.

E. Blochet, Les Mosquées de Samarcande, fasc. I, Le Gour Emir (St. Petersbourg: 1905), p.V.

Ernst Cohn-Wiener, Turan: Islamische Baukunst in Mittlelasien (Berlin: Verlag Ernst Wasmuth A.G., 1930), p. 45.

Friedrich Sarre, Denkmäler Persischer Baukunst (Berlin: Verlag von Ernst Wasmuth, 1901), p.149.

⁽³⁾ Wiet & Hautecoeur, Les Mosquées du Caire, I, p. 322.

⁽⁴⁾ Ernst Diez, Die Kunst der Islamischen Völker (Berlin und Neubabelsberg Akademische Verlagsgesellschaft Athenaion M.B.H., 1915), 88.

⁽⁵⁾ Werner Speiser, Oriental Architecture in Color (New York: The Viking Press, 1965), p.65.

⁽⁶⁾ Katharina Otto-Dorm, l'Art de l'Islam (Paris: Albin Michel, 1967), 186.

⁽⁷⁾ Martin Briggs, Muhammadan Architecture in Egypt and Palestine (Oxford, 1924), p. 197.

⁽⁸⁾ Franz Pasha, Die Baukunst des Islam, p. 133.

David Roberts, in Egypt and Nubia from drawings made on the spot,⁽¹⁾ volume III, Plate 21, published in 1849 is the first artist who made an engraving of al-Sultāniyyā which is invaluable because it is the only representation of the monument before the collapse of the northern dome.

Prisse d'Avennes in 1877, in L'Art Arabe d'après les Monuments du Kaire,⁽²⁾ Atlas plate XXIV, has a representation of the Minaret under the erroneous title of "Ghourab al Imām".

The Comité de Conservation des Monuments de l'Art Arabe⁽³⁾ which names al-Sultāniyyā in the Comptes Rendus des Exercices of 1894, 1895, 1896 and 1902, never gives either a description of the monument or an illustration of it, but merely lists it in relation to the monuments of the Qarāfā al Kubrā which need to be repaired, and the amount of money which would have to be spent for its restoration.

Julius Franz Pasha, in Die Baukunst des Islam, in 1896, is the first one to present an architectural study of the monument with a section of the fallen northern dome, an elevation and a ground plan of the two domes.⁽⁴⁾

In 1897, Schroeder, in La Vie et les Paysages d'Egypte, illustrates al-Sultāniyyā in an unnumbered plate.

In 1898, Reynolds-Ball in The City of the Caliphs, also gives an illustration of the building (face).⁽⁵⁾

⁽¹⁾ Lithographed by Louis Hague (London, 20 : Threadneedle Street, 1849).

⁽²⁾ Published in Paris by A. Morel and C°.

⁽³⁾ Publié au Caire: Imprimerie de l'Institut Français d'Archéologie Orientale.

⁽⁴⁾ See p. 129, figs. 175 and 176.

⁽⁵⁾ In plate 15, p. 154.

In 1919, Creswell, in his "Brief Chronology of Muhammedan Monuments", p. 128-9, places al-Sultāniyyā in a historical context, presenting a concise and useful enumeration and description of the most outstanding features remarking upon its unique characteristics in relation to other Mamluk monuments of Cairo and justifying the XVth century dating first suggested by Franz Pasha.

In 1924, Martin Briggs, in Muhammedan Architecture in Egypt and Palestine mentions al-Sultāniyyā on page 197.

In 1927, Borcharat (L) and H. Riche in L'Egypte, have an illustration of al-Sultāniyyā on plate 49.

Rosenthal in Pendentifs, trompes et Stalactites dans l'Architecture Orientale"(p. 83), and Pauty in "Contribution à l'Etude des Stalactites"⁽²⁾(p. 148) refer to al-Sultāniyyā as an exceptional case for stalactite pendentives.

In 1932, Wiet and Hautecœur in Les Mosquées du Caire, often name al-Sultāniyyā and date it to about 1440.

Louis Massignon in 1958, in "La Cité des Morts au Caire: Qarafa - Darb al Ahmar"⁽³⁾only lists al-Sultāniyyā as one of the monuments of the Qarāfā.

In 1962, Dorothea Russel in Medieval Cairo (p. 226) points to al-Sultāniyyā as being "the mausoleum of the mother of Sultān Hasan", although she keeps the XVth century dating.

In 1969, John A. Williams, in a paper presented at the Colloquium for the Millenary of Cairo, under the title of "The Monuments of Ottoman Cairo" mentions al-Sultāniyyā in a paragraph page 4: ..."Persian-Transoxanian features such as the Timurī dome, similar to that of Timūr's tomb in Samarquand, were being imitated in Cairo by the end of that century - e.g. at the tomb of Yūnus ad-Dawādār (1382) and al Qubbā al-Sultāniyyā (near end of century)..." He thus favors the Index dating over Creswell's, and seems to overlook the chronological inconsistency.

⁽¹⁾Published in Paris: Librairie Orientaliste P. Geuthner(1928).

⁽²⁾Published in Cairo: Bulletin de l'Institut Français d'Archéologie Orientale, t. XXIX (1929).

⁽³⁾Published in Cairo: Institut Français d'Archéologie Orientale, tome LVII - extrait.

CONCLUSION :

These are as far as I know the only works where al-Sultaniyyā is either illustrated, mentioned or briefly described. From this bibliography which attempts to be exhaustive, it becomes clear that very little has been written about al-Sultaniyyā.

In the Archives of the Ministry of Waqfs there is no waqf deed in the name of al-Sultaniyyā. As I have been unable to discover the name under which this monument was called by the historians of the Mamlūk period, no other relevant waqf deed could be found. Unfortunately indeed, because this would have securely solved the problems of ownership, dating and purpose as usually in these waqfeyyas there is a complete enumeration of the names and titles of the founder and a minute description of every part of the building, its function, purpose, size and position.

Lacking such a document all conclusions must necessarily be hypothetical; further research may bring up the name of the builder. But in the meantime, because there is only one historical source (dated 1660 A.D.) which names al-Sultaniyyā and in which it is very clearly stated that al-Sultaniyyā belongs to the mother of Sultān Hasan, and because there is no definite evidence against this attribution, I choose to retain it until a better one can be securely proved.

The literary evidence having not solved any of the problems of al-Sultaniyyā, the basic material must necessarily be the monuments themselves. One may certainly not arrive at a final date unless one finds either a dating inscription or a historical reference stating a date of construction or inauguration, and whatever conclusion one presents must always be subject to change in front of new material and new evidence. At present, our only possible scientific method to arrive at an approximate dating is to work on the monuments and show identity, similarities or differences between the undated monument under study and other dated monuments taking into consideration that certain architectural and decorative features are favored at some period and discarded at others. This is the subject matter of Part III.

PART III : THE ARCHITECTURAL EVIDENCE.

Although this building is unusual in many respects, it does continue foreign architectural features already rooted in Egypt. If carefully studied, they may help us in specifying dating and purpose of the whole complex.

A. THE DOMES :

The most striking feature, and that which has an obvious foreign origin is the double stone domed structure.

(1)

Hautecoeur writes that generally in the Burji period the domes are double, consisting of an interior rather shallow dome and an exterior one which is heightened (*surhaussé*). To hold the second dome, the architects set above the first dome dividing walls arranged according to a certain number of diameters to the main circle. He gives as an example of this type of construction one of the domes of al-Sultaniyyā which was half destroyed at that time.⁽²⁾ He adds that this method is used in the whole Orient and is met again with in the tomb of Timurlank in Samarkand.

Limongelli, in his article "Remarques au sujet de la stabilité de la coupole du Mausolée de Tamerlane à Samarcande", writes that the inner dome is useful for the inner effect and conceals the construction process used. This artifice consists of twelve internal radial buttresses welded to the exterior dome and leaning over the inner dome and ending towards the center in a small mass set off over the apex of the lower dome. These radial buttresses prevent the lateral forces to act towards the exterior and endanger the stability of the dome in cases of earthquakes etc. Their mass brings the resultant physical forces towards the interior and diminishes the thrust. They have an important stabilizing function and constitute a typical disposition dictated by the bulbous profile of the dome in corbellings.⁽³⁾

⁽¹⁾ Wiet and Hautecoeur, Les Mosquées du Caire, I, p.322.

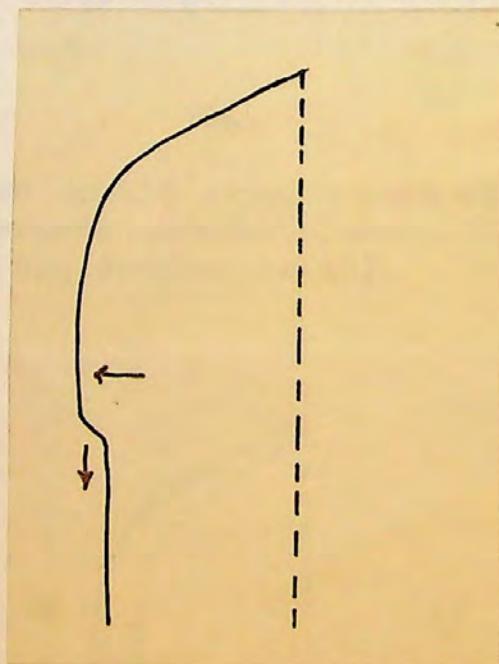
⁽²⁾ That is in 1932.

⁽³⁾ M.D. Limongelli "Remarques au sujet de la stabilité de la coupole du Mausolée de Tamerlane à Samarcande", Bulletin de l'Institut d'Egypte, tome IV Session 1921-22 (Le Caire: Imprimerie de l'Institut Français d'Archéologie Orientale, 1922), p. 82.

This analysis applies exactly to the double dome structures of al-Sultaniyyā. But the two stone domes are smaller in scale and less bulbous. The outershell is made of stone, while the six inner radial buttresses supporting it are made of alternating brick and wood and radiate from a central wooden pillar.⁽¹⁾

In al-Sultaniyyā the twin domes are double, they have a structural function and show signs of an experimental construction.

There are two main reasons for the need of an inner dome: the stalactite corbeling at the base of the outerdome, which gives it the slightly boulbous aspect, is set without abutment on a proportionately very high drum. Therefore, an inner construction resting on an inner dome is necessary to counterbalance the lateral and vertical thrusts of the upper dome (see drawing below):



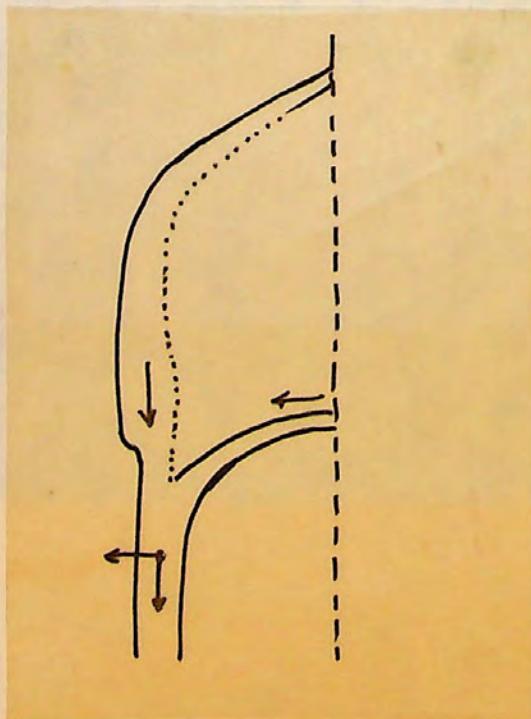
On the exterior shell the vertical joints are not linked and they follow the gutter between two ribs once on the right, once on the left, at never more than five centimeters

⁽¹⁾ See illustration (2) on Plate VII

from each other, therefore, the link is only symbolic, and certainly not secure, thus there is a need to support the dome from the interior, because otherwise, the lateral and other thrusts of the dome will prevent it to hold together (see drawing below).

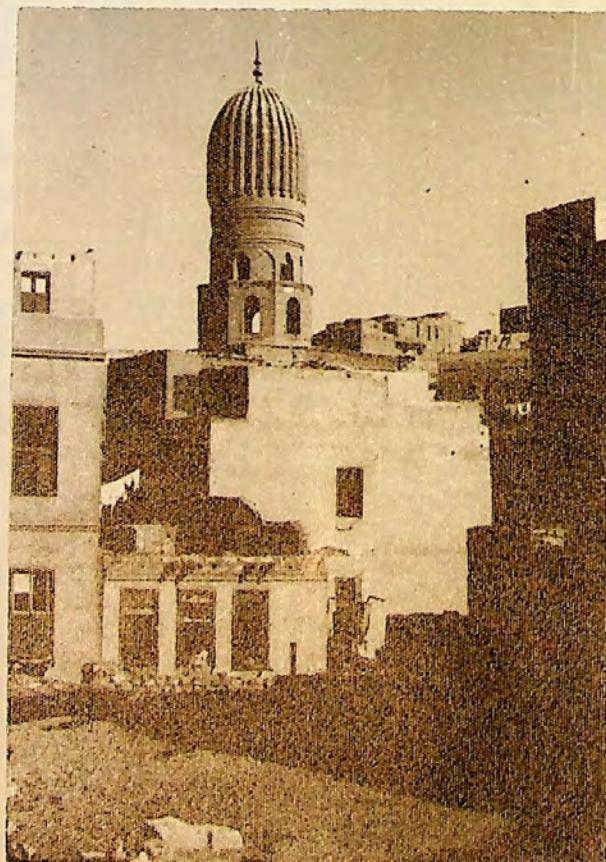


As a result the two shells support each other; the vertical thrust of the outerdome counterbalances the lateral thrust of the inner one (see drawing below).



Therefore the double dome is one of the architectural solutions to the problem of setting a bulbous dome with a stalactite corbelling slightly projecting, on a high cylindrical drum, so as to establish an equilibrium position between the various physical forces at play.

The architect who built the dome of Yunus al-Dawadār (1382) tried to avoid the construction of a double dome structure and so as to arrive at the necessary equilibrium between the vertical and lateral thrusts, he had to reduce the area of the hexagonal chamber and to heightened the dome at double its usual size: the transitional chamber zone is disproportionate in relation to the size of the base of the dome as if the architect had changed his plans in the process (see illustration below).



All authors agree on the Persian origin of the double domes. According to Wilber, the inspiration of double domes came from Western Iran and evolved from wood to masonry because of the scarcity of timber and the general preference for the use of brick. At first some wooden domes were built over the brick lower ones and then both shells were made of brick.⁽¹⁾ The most conspicuous prototype of a true double dome is that of the tomb of Sultān Sanjar at Merv (c.1157), which is clearly an experimental structure because the outershell is needlessly lightened by pointed arch arcades in two disproportionate storeys.⁽²⁾

From this period the double dome continues well into the Timurid and Safavid times!⁽³⁾

Creswell believes that the double slightly swelling persian dome was first copied in brick from the double bulbous wooden dome of the Great Mēsque of Damascus built between 1069 and 1082, by Timur after he sacked the city in 1401.⁽⁴⁾

He also believes that the wooden dome of the Ummayyad Mosque must have influenced the shape of the original bulbous dome of the Mausoleum of Sultan Hasan in Cairo.⁽⁵⁾

He bases his argument on two sources: According to Khalil al-Zāhiri, who lived in the days of the Sultān al Zāher Abu Sa‘íd Djakmak (1438-53), when Sultān Hasan decided to build his madrasa, he called architects from all countries of the world and ordered them to build a madrasa higher than any that existed in the world!⁽⁶⁾

His second argument is based on Pietro della Valle's

⁽¹⁾ Donald Wilber, The Architecture of Islamic Iran: The IlKhanid Period (Princeton: New Jersey, 1955), p.63.

⁽²⁾ Ibid., p.61.

⁽³⁾ Ibid., p.64.

⁽⁴⁾ KAC Creswell, "Origin of the Swelling Dome", Indian Antiquary vol.LI (Mazgaon: British Indian Press, 1922), pp. 78-79.

⁽⁵⁾ KAC Creswell, "The History and Evolution of the Dome in Persia"; Memoires on Mohammadan Architecture (Indian Antiquary, July 1915), pp. 145-150.

⁽⁶⁾ Ibid., p.151.

⁽⁷⁾ Khalil al-Zahiri, Tableau Politique et Administratif de l'Egypte, de la Syrie et du Hidjâz sous la domination des Sultan Mamlûks (Texte arabe publié par Paul Ravaisse en 1895 à Paris), p. 31.

description of the dome of the Mausoleum of Sultan Hasan. He writes in his twelfth letter dated March 7, 1616: "this dome is of a shape I never saw before, starting narrow, then widening and then decreasing again in the shape of a chicken's egg".⁽¹⁾

Herz Bey comments that "if one reconstructs the dome according to the bibliographical note of Pietro della Valle, one finds the characteristic swelling (galbe) of domes widening beyond the drum by the use of tiers of stalactites as in the Mausoleum of the Emir Sirghitmish and others".⁽²⁾

The first dated example of a dome which is bulbous and slightly projecting at its base is the dome of the Mausoleum of the Emir Sirghitmish (1356).

It seems that this brick dome is the first instance of a double dome construction in Cairo. Unfortunately it has proved to be impossible to produce a section and exact measurements since inspite of my continuous efforts, no architect so far has succeeded in surmounting the many serious technical difficulties it raises. What follows is a tentative demonstration of my belief shared by all those who have been stricken by the unusual shape of this dome and the obvious difference in the heights of the outer and inner domes.

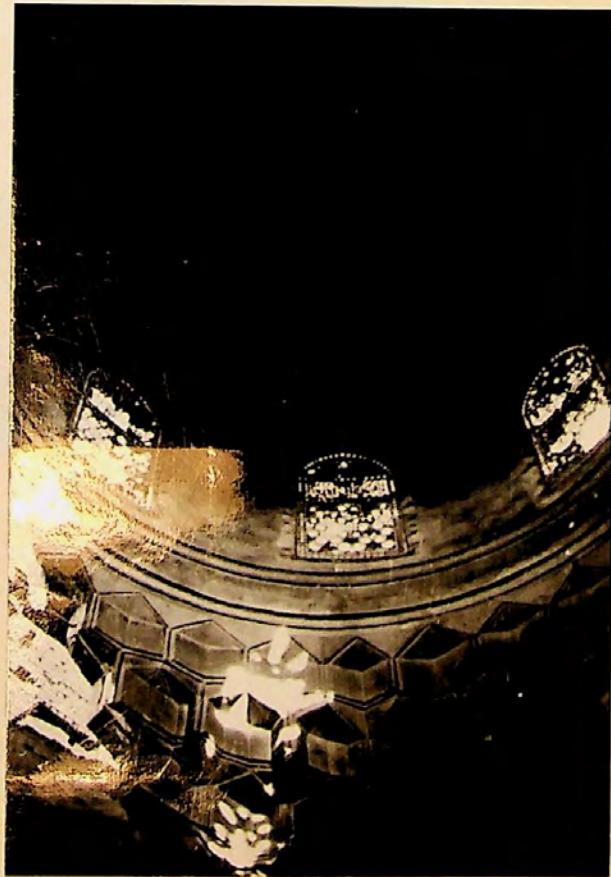
The windows can be taken as a reference point. On the exterior, they are part of a straight rising drum. They are situated at the lower part of it and are surmounted by an area equal to the height of another window. This area is crowned by three tiers of stalactites which link the cylindrical drum to the slightly bulbous upper shell of the plain brick dome.

In the interior these windows appear just above the transitional zone. It seems that the curving of the

⁽¹⁾ Quoted in Herz Bey, La Mosquée du Sultan Hasan, p. 17-18.

⁽²⁾ Herz Bey, La Mosquée du Sultan Hassan, p. 23.

dome which, as I see it, is less than a hemisphere, starts at about half a meter above the upper end of the windows and ends about one meter above (see illustrations below).



This apparent discrepancy suggests the presence of two distinct shells. From a comparison between the two heights, it seems that the inner dome ends approximately at the level of the stalactite tiers or slightly below. The second shell is set above it and the inner link between the two domes is hidden by the corvelling and the tiers of stalactites.

Both structures are made of brick. On the basis of an illustration in Ebers of the original dome which was over the mihrāb,⁽¹⁾ one may suggest that the outer dome of the mausoleum rests on a wooden grill of ribs, over which bricks have been inserted (See illustration below).



If one carefully looks at the dome, this underlying wooden structure can be perceived in the places where the upper layer of stucco has fallen.

⁽¹⁾ G. Ebers, Egypt: Descriptive, Historical and Picturesque, Translated from the original German by Clara Bell (vol. I; Cassell, Petters, Galpin and Co., 1878), p. 296.

Few single monuments have attracted as much attention as Timur's tomb in Samarkand: the Gur-Emir. No work in Islamic Architecture would venture to be presented to publication without a reference to it, if not an illustration of this monumental and majestic building. This of course, excluding those publications which concentrate on it and dedicate whole chapters to its study, description and analysis.⁽¹⁾

Because of the fame of the Gur-Emir, its striking proportions, its size, the richness and refinement of its decoration; because it is the tomb of the illustrious Timur, and also one of the best representation of the architectural achievements and innovations of the Timurid period, all ribbed bulbous domes set on stalactite corbellings over a high cylindrical drum are traditionally called 'Samarkandi'.

The Central Asian domes of this type are:

That of the Shrine of Khwajah Ahmad Yassawī in Turkestan City,⁽²⁾ begun in 1397, but in which parts are added much later. Professor Michael Rogers, after having been through the most important sources including the Russian ones, believes that "the ribbed dome is a XVth century addition or restoration, or worse still, one dated post 1900".

The Mausoleum of Gawhar Shad, daughter of Timur, in Herat⁽³⁾ (undated, but ascribed to before 1435).

That of the Shrine of Khwajah Abu Nasr Parsa in Balkh (1460-1).⁽⁴⁾

And finally the two domes of the Shir Dar Medrese in Samarkand, dated 1616, which flank a central iwan in a plan quite similar to that of al-Sultaniyyā in Cairo.⁽⁵⁾

⁽¹⁾ KAC Creswell, A Bibliography of the Architecture, Arts and Crafts of Islam (Cairo: The American University Press, 1961), pp. 303-311.

⁽²⁾ Illustrated in Cohn-Wiener, Turan, Plate LXI and Hill and Grabar, Islamic Architecture and its Decoration, pl. 104-6.

⁽³⁾ Illustrated in the CAS slide collection no 1772

⁽⁴⁾ Jeannine Auboyer, The Art of Afghanistan (Czeckoslovakia: Artia, 1968), illustrations 126 and 128.

⁽⁵⁾ Cohn-Wiener, Turan, plates LXXVII and LXXVIII.

Therefore the appearance of ribbed domes "typically Timurid" comes very late, at best in 1397, but most probably after Timur's death. Nevertheless the ribbing was never widespread and the plain domes continue well into the XVth century.

On the other hand the tradition of ribbing existed in Egypt since the Fatimids and continued uninterruptedly until the XVth century.

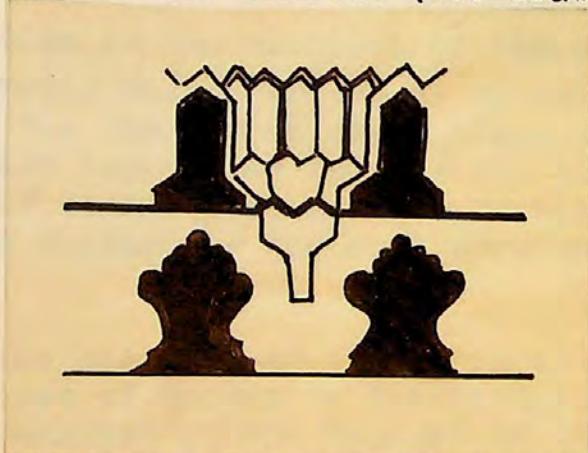
In Cairo, the earliest ribbed dome appears in brick, over the Mausoleum of Sayyida 'Atikā (1120-5), it is followed in 1133 by that of the Mashhad of Sayyida Ruqayyā and that of the Mashhad of Yahyā al Shabīhī (1150). These early ribbed domes are characterized by thick ribs on the exterior, to which corresponds an inner ribbing. In these early domes the ribbing had a structural purpose which it lost after that period.⁽¹⁾

Starting on the earliest dated mabkhara, that of the brick minaret of Abu'l Ghadanfar (1157),⁽²⁾ ribs, reduced in thickness are on the exterior only, and the inside of the dome is smooth. Ribs have become a decorative feature. A ridge is introduced between two ribs possibly as a substitute for the inner ribbing to give stability to the dome. The formula of ribs reduced in thickness and separated by ridged gutters is then applied to all the subsequent ribbed domes whether they are made of brick or of stone, including those with an inner ribbing.

⁽¹⁾ Except for three later brick domes: the mausoleum of Zayn al Din Yusūf (1298); that of Tashtimūr (1334) and that of "Anas" (1382), where an inner ribbing corresponds to the outer one.

⁽²⁾ KAC Creswell, The Muslim Architecture of Egypt, II, p.140-1.

Mabkhara⁽¹⁾, or as Briggs calls them, censers or knobed shaped minarets, are important in the development of Cairene Architecture because they present the first occurence of the combination of ribs and stalactites. All the mabkaras, except the first one, that of Abu'l Ghadanfar, rest on stalactite friezes of varying numbers of tiers. Stalactites first appear as a support and decoration to the mabkhara of the Sālihiyyā Madrasa (1241-3)⁽²⁾ where they extend over the two storeys which support the mabkhara forming a pendant composition. The first storey is pierced by windows and the second one is decorated by one tier and a half of niches which end in a pendant shape on the first tier, in the area in between two windows (see drawing below).



The next mabkhara, which although undated is ascribed to c. 1260, is that of the Minaret of Zawiyat al Hounūd.⁽³⁾ It is more elaborate and is supported on three storeys. Just below the ribbed cap there is a continuous tier of elongated niches; below, a second tier of fewer and larger ones ending in two niches on the first tier. The total composition in three tiers is also in the shape of a pendant delimited by windows in the lower part.

The next mabkhara is a stone one. That of the minaret of Ibn Tulūn (1296). At the base of the dome there are two tiers of stalactites which surround the ribbed upper cap.

⁽¹⁾ Martin - Briggs, Muhammadan Architecture in Egypt and Palestine, p. 98.

⁽²⁾ Wiet and Hautecoeur, Les Mosquées du Caire, II, plate 59.

⁽³⁾ Ibid., plate 61.

That type, much simplified relatively to the brick ones, will be adopted by the subsequent ribbed tops, even those made in brick, as for example that of the minaret of Salār and Sangar al Gawlī (1303-4), or that of the minaret of the Khanqah of Baybars al Gashenkir (1309-10). Two exceptions should be pointed out: the tops added to the minarets of the Mosque of al-Hākim by Baybars al Gashenkir in 1304⁽¹⁾ which are the finest mabkhara of superb decorative effect. There are stalactites on the three storeys, four tiers on the first one, in pendant outline delimited by keel arched windows, the second storey is pierced by six lobed arched windows; the last tier is a repetition of the first one with only three tiers of stalactites.⁽²⁾

The other exception is the mabkhara of the minaret of the Madrasa of Haṣan Sadaqā or Sunqur Sa'ādī (1315)⁽³⁾, which is supported by two storeys in eight tiers of stalactites. There is no marked separation between the two storeys because a tier of niches covers the balustrade. This brick minaret is crowned by the most developed form of mabkhara.

There are two more examples of this type of minaret caps: that of the minaret of Qawsūn in the Southern Cemetery (1337) and that of the minaret of the Khanqah of Tankizbougha in the Northern Cemetery (1362). These mabkhara are in stone and crowned by an identical stalactite arrangement in three tiers, with the uppermost tier pointing outwardly in the saw-teeth fashion of all the Tankizbougha monuments. Although the upper part of the Qawsūn minaret has partly collapsed, originally its profile was more rounded than the Tankizbougha one which is more angular.⁽⁴⁾

⁽¹⁾ KAC Creswell, Muslim Architecture of Egypt, II, p. 140-1.

⁽²⁾ Wiet and Hautecoeur, Les Mosquées du Caire, II, plate 18.

⁽³⁾ Ibid., plate 101.

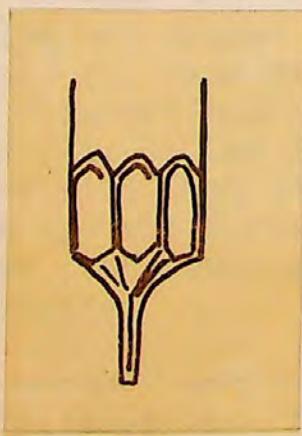
⁽⁴⁾ Ibid., plate 117 (Qawsūn) and plate 139 (Tankizbougha).

Two exceptional cases are the tops of the minarets of the Mosque of al-Nāṣir Mohamed ibn Qalaoun in the Citadel (1335) which are ribbed, bulbous and glazed and underlined by a band of glazed inscription instead of the stalactites usually seen below the ribbed knob shaped minarets. These were made by an architect from Tabriz, and the term mabkhara can hardly be applied to them.

After 1362 it seems that the fashion of building this type of finial at the top of minarets was definitely abandoned and replaced by bulbous shaped knobs.

The combination of ribs and stalactites, so common on mabkhara is not to be seen on any dome except on the two domes of al-Sultāniyyā and that of Yunūs al-Dawadār, in which the ribs end in stalactite corbels in pendant compositions.

The stalactite corbeling at the end of each rib in the Sultāniyyā domes is formed by a complex and independent unit in three tiers.⁽¹⁾ In Yunūs al-Dawadār, the end of each rib is decorated by three niches ending on the next tier with a six pointed fan-shaped pendant in a much simpler composition (See drawing and illustration below).



⁽¹⁾ See page 24 of the present paper.

Although on the mabkharas the ribs are supported by uninterrupted tiers of niches surrounding the base of the drum; these are arranged, especially in the early brick examples in gradually decreasing tiers forming pendants as in the mabkhara of the Sālihiyyā Madrasa...

The idea of combining ribs and stalactites did exist in Cairo and had been a traditional feature, but it was restricted to use on mabkharas.

The originality of the architect of al-Sultaniyyā was to readapt and combine these two elements of decoration on a larger scale. His artistic contribution was to embody the stalactites within the rib so that they could constitute a finial to it instead of being part of the protruding storey all around the base of the dome as it was previously done on all the mabkharas.

This is the feature which makes these domes so remarkable all the more so since it is also present, but in a less complex stalactite composition on the Gur-Emir⁽¹⁾ and on all the so called 'Samarkandi' domes.

Architecturally, the mabkharas are important because they have contributed to the evolution of ribs on domes first with the introduction of the ridged gutter in between two ribs. Also it seems that architects tried new shapes and techniques on these reduced ribbed domes and when successful, adapted some of the elements on a larger scale, that is on a dome. It seems to be the case on the dome of Abu'l Ghadanfar al Fā'iṣī⁽²⁾ (undated, but the Index introduces it at the end of the Ayyubid Period: begining of 7th c.H/ 13th A.D.); with its rather angular outline it looks like an enlarged mabkhara.

⁽¹⁾ Milos Hrbas, The Art of Central Asia (Czeckoslovakia: Artia, 1965), plate 80.

⁽²⁾ ~~Prages, Muhammadan Architecture, p. 92.~~

⁽¹⁾ Illustrated in the Comité 1922, fasc. 32 -plate XX.

In later examples, both mabkhara and domes loose the angular profile and acquire a rounded one.

Another example of a similar transposition, applied to material rather than shape is the mabkhara of the minaret of Ibn Tulūn (1296) which is the first construction of ribs in stone on a small dome. The first ribbed dome in stone on a large scale appears in the Mausoleum of 'Alām al Din Sunqūr al Muzāffar,⁽¹⁾ dated in the Index to 1322. It is a rather small stone dome, with at the base of the ribs a band of naskhi inscription closely following the ribbed brick ~~in~~ fashion introduced since the domes of the Zawiyat al 'Abbār (1284-5) and the Qubbā al Sawābi (1285-6).

The next stone ribbed dome is that of the Mausoleum of Aydumur al Bahlawān (1346), closely followed by that of the Mausoleum of Tatār al Hidjāziyyā (1348). From 1359 to 1393 all the ribbed domes, except those of Tulbāy (1363-4) and of "Anas" (1382) are made in stone.

There are two isolated occurrences of a stone ribbed dome in the later period, that of Qaraqoga al Hasānī (1440) and that of 'Abdallāh al Dakrūrī (1466), but these two examples do not show any inventiveness in style, decoration or construction.

The period of inventiveness in stone ribbed dome construction is between 1359 and 1382, during which time examples as varied as the two Tankizbougha domes (1359 and 1362) with the alternately concave and convex ribbing is seen for the first time and only once again on the dome of Ima'l al 'Atabkī (1392-3); or the twisted ribs of Uldjāy al Yusūfī (1373), reinterpreted in an angular fashion on the dome of Aytāmish al Bagāsī (1383) and never to be seen again; or the ribs on stalactite corbellings as in al-Sultāniyyā and on Yunūs al-Dawadār (1382). The dome of Tatār al Hidjāziyyā, those of Umm al Sultān Sha'bān (1368-9) and that of the North of "Tankizbougha" are more 'classical' and in the ribbed brick dome tradition.

⁽¹⁾ Illustrated in the Comité 1922, fasc. 32 - plate XCV.

After 1393, it seems that the fashion of ribbed domes is dying. Only secondary constructions of minor importance have ribbed domes in brick of rather decadent style as for example that of Guzāl (1403), Ibn Ghurāb (1406) and Fayrūz (1426-7). The last example is Sudūn al Qasrawī (1468) which imitates in brick a stone motif.

In Cairo, stone ribs are replaced by stone domes decorated with chevron patterns as early as 1393 on the Mausoleum of Mahmūd al Kurdī. This motif then becomes very fashionable, it is found on the two domes of the Khanqah of Faradj ibn Barqūq (1400-11), on that of Qanibāy al Muhamādī (1413), of al-Mu‘āyyad (1415-20), of Barsbāy's Madrasa (1425), of Ganibāy al Ashrafi (1426).

From that period it alternates with stone domes decorated with curvilinear interlacing patterns as in the Mausoleum of Gani Bāk al Ashrafi in the Northern Cemetery (1427), that of the Khanqah of Barsbay (1432) and the Mausoleum in the Hosh of Barsbāy (1432). A further development, which first appears on the dome of al-Gawhariyyā Madrasa at al-Azhar (1440) consists of interlacing scrolls and floriate motifs forming complex arabesques.⁽¹⁾ It is then seen on the Mausoleum of Qayt Bāy (1472-4) where the arabesque motif is set on an intersecting linear grid.⁽²⁾

The chevron is seen also on Kuz al-‘Assāl (1441), on the Mausoleum of Ināl (14516 -6), Barsbāy al Bagāsī (1456), ‘Umar ibn al Farīd (1460), Sudūn (1504-5) and finally on Qurqumās (1506-7) where the chevron ends in lozenges.

Because the two domes of al-Sultaniyyā are stone domes, they cannot be placed before 1322. Being ribbed domes which show great inventiveness in technique, construction and decoration; stylistically they belong to the period when stone ribs were the most fashionable decorative feature.

⁽¹⁾ Christel Kessler: "Kuppeldekoration in Kairo", Fikrun wa Fann, (Switzerland: Albert Theile, 1969), fig. 4 p.27.

⁽²⁾ Ibid., fig. 6 & 7 on p. 28.

Architects would not have gone into so much trouble and work to build and decorate such complex domes with ribs at a period when chevrons had become the fashionable decorative element. Thus they must be placed before 1393.

We may reduce the possible period of the construction of the Sultaniyyā domes between 1346 and 1382. This suggestion is based on the following: before 1346 there is only one stone dome and for the next 24 years the tradition of building ribbed domes in brick is kept, encouraged and developed. Starting from 1346, stone becomes of more general use to finally be adopted to the exclusion of brick except for secondary constructions. The second chosen limiting date is 1382 on the basis that the two later examples of Aytmish al Bagāsī (1383) and Ināl al Ātabkī (1392-3) are not perfectly original motifs, but are readaptations with a slight variation of a motif previously used. This spirit, the craftsmanship and the technical achievement is not typical of the inventiveness of the Bahri Period. These constructions belong to the Burgi period chronologically and indeed stylistically also.¹¹

¹¹ In the preceding three pages I have drawn heavily on the illustrated material collected and organized by Dr. Christel Kessler for her "Survey of Domed Mausoleum of the Mamluk Period".

B. THE LAY-OUT :

In the Islamic world, twin dome-constructions exist only in Syria, Anatolia and Egypt.

Apparently there are two parallel traditions of constructing twin domes: a Syrian and an Anatolian.

The Syrian tradition is to be seen in Damascus and Aleppo and consists of adjoint twin domes; while the Anatolian tradition consists of a central iwān flanked by two identical domed structures.

Following a chronological order, the Syrian tradition develops as follows:

- 1173-4: The Mashhad al Husāyn in Aleppo⁽¹⁾, which has collapsed in 1919-20.⁽²⁾
- 1211: the Djaharkasiyya Madrasa in Damascus⁽³⁾.
- 1224: The Turba of Umm Malik al Afdal in Aleppo, with one dome over the mihrāb and the other over a mausoleum.⁽⁴⁾
- 1294-6: The Turba al Adiliyyā "Sitt Khatūn" in Damascus.⁽⁵⁾
- 1329: The Mausoleum of Bahadour Ad in Damascus.⁽⁶⁾
- 1329: The Turba Koukabaiyā "Sheikh Nihlāwi" in Damascus.⁽⁷⁾
- 1349: The Mausoleum of the Emir Araq, popularly called "Sidi Soheyb" in Damascus.⁽⁸⁾

⁽¹⁾ Ernst Herzfeld, Materiaux pour un Corpus Inscriptionum Arabicarum- 2nd Partie: Syrie du Nord- Inscriptions et Monuments d'Alep, Tome I, vol. 1 & 2 (Le Caire: Imprimerie de l'Institut Français d'Archeologie Orientale, 1955), plate XCV (plan) and plate XCVI (b).

⁽²⁾ Ibid., p. 248.

⁽³⁾ Ernst Herzfeld, "Damascus: Studies in Architecture III", Ars Islamica, XI-XII (Ann Arbor: University of Michigan Press, 1946), p. 50, fig. 70 (plan).

⁽⁴⁾ E. Herzfeld, CIA: Syrie du Nord, plate CXVI.

⁽⁵⁾ J. Sauvaget, Monuments Historiques de Damas (Beyrouth: Imprimerie Catholique, 1932), p.104.

⁽⁶⁾ Ibid., p.69.

⁽⁷⁾ Ibid., p.69 ; and Karl Wulzinger and Carl Watzinger, Damascus, Die Islamische Stadt (Berlin & Leipzig: Walter de Gruyler & Co, 1924), p. 71 (plan).

⁽⁸⁾ Sauvaget, Monuments Historiques de Damas, p. 70.

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c. 1377: The mausoleum of Yashbak (or Tanbak) in Damascus, called "Jami' al Taynabiye".⁽¹⁾

c. 1385 : The Madrasa al Rashidiyya in Damascus; the two domes are separated by a smaller surface which probably was domed.⁽²⁾

In the later examples, the separation between the two domes becomes larger, especially in the Madrasa of Sheikh Hasan Rai al Himne in Damascus (c.1450).⁽³⁾

A variation to this plan, which seems to originate in that of the Mosque of 'Alā' al Din in Niğde (1223)^(4,5) can be seen in Aleppo in the Madrasa I al Kāmiliyyā (between 1229 and 1236), where two equal domes flank a central third dome crowning the mihrab.⁽⁶⁾

A further development occurs in the Madrasa al Zāhirīyyā in Aleppo (1225) where two equal domes flank the central rectangular mihrāb area, crowned itself by three domes.⁽⁷⁾

⁽¹⁾J. Sauvaget, Monuments Historiques de Damas, p.73, fig.28 (plan).

⁽²⁾Ibid., p. 73.

⁽³⁾Karl Wulzinger and Carl Watzinger, Damascus, Die Islamische Stadt, plate 20 (plan).

⁽⁴⁾Ibid., plate 22 (plan).

⁽⁵⁾Gabriel, Monuments Turcs d'Anatolie, I (Paris: E.de Boccard, 1931), p.120 and fig. 72 (planp).

⁽⁶⁾In this mosque the southern dome is built in an eight sided domical vault, an unusual feature which reappears in the southern mausoleum of al-Sultāniyyā in Cairo, where the domical vault is a twelve sided one.

⁽⁷⁾E.Herzfeld, CIA: Syrie du Nord, plate CXI (b) for the plan.

⁽⁸⁾Ibid., plate CXVIII (b) for the plan.

The chronological sequence of the Anatolian tradition develops as follow:

1243: The Sircali Medrese in Konya.⁽¹⁾

1252: The Karatay Medrese in Konya. This building introduces a new feature: the central courtyard is covered by a lantern cupola.⁽²⁾

1258: The Ince Minarelli Medrese in Konya.⁽³⁾ The central courtyard is also covered by a lantern cupola. The plan becomes more symmetrical along with the introduction of a minaret.

1278-9: The Medrese of Yusuf ibn Ya'qūb in Çay.⁽⁴⁾ The dome covering the central court does not have a lantern.

There was a caravanserail beside the madrasa.

1339: The Medrese of Ermenak.⁽⁵⁾

1351: The Mosque of Sultan Sulayman in Hisn Hayfa.⁽⁶⁾

1382: The Ḥatuniyyā Medrese in Karaman,⁽⁷⁾ which is quite elaborate in plan with small cupolas over the lateral rooms. A deterioration of this plan is met with in Mardin in the Medrese of Sultan 'Isā (1385) where the twin domes are separated by series of rooms and the iwān is set on the opposite side.⁽⁸⁾

⁽¹⁾ Behçet Ünsal, Turkish Islamic Architecture in Seljuk and Ottoman times 1071- 1923 (London: Alec Tiranti, 1959), p. 35 (a).

⁽²⁾ Ibid., p. 35 (b), for the ground plan.

⁽³⁾ Ibid., p. 35 (c), for the ground plan.

⁽⁴⁾ Kurt Erdman, "Vorosmanische Medresen und Imarets vom Medresentyp in Anatolien", Studies in the Islamic Art and Architecture in Honor of Professor KAC Creswell (Cairo: American University Press, 1965), p. 59 (plan).

⁽⁵⁾ Celal Asad Arseven, Turk Sanati Tahiri, fasikul III (Istanbul: Maarif Basimevi), p. 184 , fig. 361 (plan).

⁽⁶⁾ A. Gabriel, Voyages Archeologiques dans la Turquie Orientale, I, (Paris: E. de Boccard, 1940), p. 66, fig. 52 (plan).

⁽⁷⁾ Celal Asad Arseven, Turk Sanati Tahiri, III, p.185, fig. 365 (plan).

⁽⁸⁾ A.Gabriel, Voyages..., I, p.30 fig. 22 (plan).

1409: The Ak Medrese in Niğde⁽¹⁾, a two floor madrasa with a perfectly symmetrical plan. The small lateral rooms are all vaulted on both floors. This building is the only Anatolian example of a two storey facade. A parallel to this facade is that of the Maristan of al Mu'ayyad in Cairo (1418-20), which has the same chain band motif as in the Ak Medrese.⁽²⁾

From the preceding enumeration it follows that in Syria, the majority of twin domes are associated with funerary monuments, occasionally to madrasas (the Djaharkassiyah, the Rāshidiyyah) and exceptionally with a mosque as in the Jāmi' al Taynabiyyah. While in Anatolia, twin domes are associated with madrasas.

This Anatolian madrasa plan is that which has been adopted in the Cairene khanqahs, where the lateral rooms were used as cells. There are also occasional borrowings from the Syrian plan of adjoint mausoleums as in the complex of Salār and Sangar al Gawlī.

The tradition of twin domes is not widespread in Egypt, it appears later than in Syria and Anatolia and is characterized by an independent development with occasional borrowings which are melded within the local tradition.

Twin domes are generally associated with khanqahs when in the cemeteries and with madrasas when in the city.

It seems that the earliest type consisted of one large mausoleum at the right of the iwān which developed into two unequal domed chambers with the larger one at the right of the iwān and finally into the most developed form of two equal domes flanking either a central iwān or a riwāq.

⁽¹⁾ A. Gabriel, Monuments Turcs d'Anatolie, vol.I ,p. 138 fig. 90 (plan).

⁽²⁾ Comité, Comptes Rendus des Exercices 1915-1919 (Milano: Unione Zincographi, 1922), plate CXXXVIII.

There are no standing examples of the first type, but when referring to the Description de l'Egypte, pl. 62 + 63 one may see that in the past there were many such structures in the cemeteries.⁽¹⁾ Unfortunately they have collapsed.

There are three structures of the second type. One of them has disappeared, but fortunately it was photographed by the Department of Antiquities before its collapse. The second one is partially destroyed (*Abdallāh al Manūfi*) and the third one is almost in its original state (the Khanqah of Umm Anouk or Khawand Toghay).

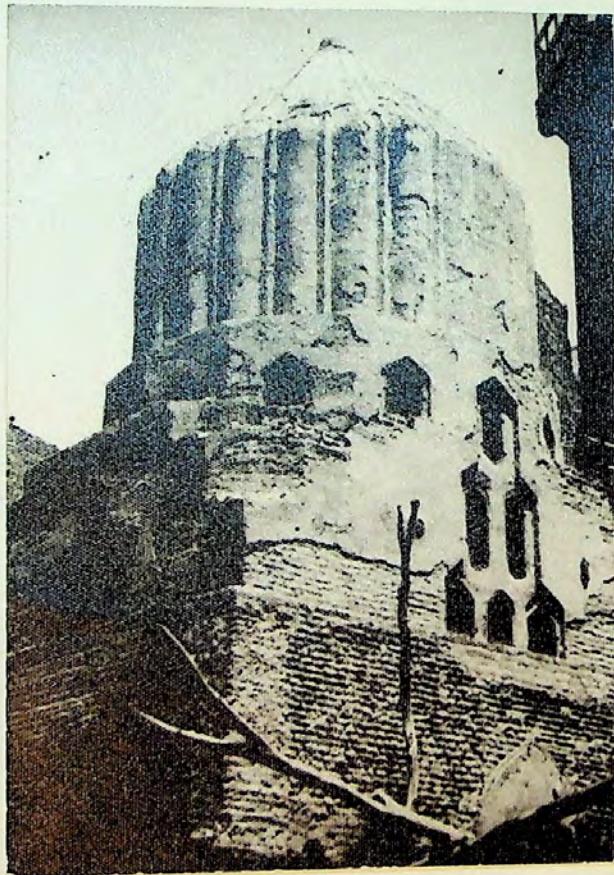
The structure photographed by the Department of Antiquities is unidentified and undated (see illustration below).



⁽¹⁾ Description de l'Egypte ou Recueil des Observations qui ont été faites en Egypte pendant l'Expedition de l'Armée Française publié par les ordres de sa Majesté l'Empereur Napoléon le Grand. Etat Moderne, Planches, Tome I (Paris: Imprimerie Impériale, M.DCCC.IX), pl. 62 et 63.

Stylistically, a close parallel can be drawn between the dome of this unknown mausoleum and that of the mausoleum of Abu'l Ghadanfar (ascribed in the Index to the 13th century).

They have a similar angular shaped ribbed brick dome, a drum pierced by keel arched windows and a stepped transitional zone. But the ribs in the unknown mausoleum are thicker and yet, outlined by thin ridges, the windows are less numerous and the transitional zone is in two steps only (see ill. below).



I believe that these two domes are close in date; the unknown mausoleum seems to be slightly earlier on the basis of the thickness of the ribs and the slight architectural and decorative differences.

What is especially remarkable is the presence of an iwān which is close in shape and decoration to that of Abdallah al Manufi, with one central undecorated mihrāb. Because of the brick remains on the left side and the presence of an arched door on that side, one may suggest that possibly the structure extended to the left, into another smaller domed room, similarly to the original plan of al Manūfi.

In 'Abdallah al Manūfi, this smaller domed chamber has disappeared at present and only the largest dome at the right of the iwān is still standing. But Prisse d'Avenne⁽¹⁾ presents an engraving of 'Abdallāh al Manūfi called "tombeau au cimetière de l'Imām al Chafe'i" with two unequal domes and an iwān. This drawing is very similar, if not identical to the photograph attributed by Hasan 'Abdel Wahhāb to Creswell. It was taken before the collapse of the second smaller dome, already clearly cracked.⁽²⁾ Hasan 'Abdel Wahhāb stylistically dates this construction to the period in between 1290 and 1310.⁽³⁾

The third and last example of this plan is seen in the Khanqah of Umm Anōuk or Khawand Toghay (1348) in the Northern Cemetery.⁽⁴⁾ The dome has collapsed, but the chamber is still standing.

There are four structures of the third type:

The Khanqah of Qawsūn

The Khanqah of al-Sultāniyyā

The Madrasa of Umm al Sultān Sha'bān

The Khanqah of Faradj ibn Barqūq.

Although the second dome has disappeared, the first

⁽¹⁾Prisse d'Avenne, L'Art Arabe d'après les Monuments du Kaire (Paris: A. Morel & C°, 1877), plate XVIII.

⁽²⁾Hasan 'Abdel Wahhāb "al 'imārā al islāmiyyā: dawlat al mamālik al bahāriyyā", Magallah al 'Imārah, vol. 4 № 1-2 (1941-2), p. 62.

⁽³⁾Ibid., p. 62.

⁽⁴⁾Wiet and Hautecœur, Les Mosquées du Caire, II, plate 115.

occurrence of a symmetrical plan seems to have been in the Khanqah of Qawsūn in the southern cemetery (1335-6)⁽¹⁾ where the two domes were separated by a riwāq, similarly to the plan of the last occurrence of a twin domed structure in Cairo; in the Khanqah of Faradj ibn Barqūq (1400-11).

In the two examples following Qawsūn, the twin domes are equal and flank an iwān, they represent the triumph of the Seljuk Anatolian Medrese plan: the Sultāniyyā and the Madrasa of Umm al Sultān Shā'bān (1368-9).

If one includes all the standing twin domed structures in Cairo, regardless of their plan, one should include in this list the two domes of the Khanqah al Bunduqdariyya which are ascribed by Creswell to the same date (1283-4)⁽²⁾ although he doubts that they belong to the same monument.

The two domes of the Salar and Sangar al Gawli (1303-4); and also the two domes of the Madrasa of the Emir Sirghitmish (1356), in which one dome was over the mihrāb and the other is over the mausoleum.

The lay-out of al-Sultaniyya should be placed in the context of the development and evolution of twin domes in Cairene Architecture.

On the basis that it has a symmetrical plan with equal twin domes flanking an iwān, it could have been conceived and executed at any period between 1335 (Qawsūn) and 1400-11 (Faradj ibn Barqūq), which is the period during which symmetrical plans existed. Because the Khanqah of Qawsūn is the direct neighbour of al-Sultāniyyā, I have already suggested that it probably was its inspiration plan wise⁽³⁾ But because al-Sultāniyyā is built in stone,

⁽¹⁾Adil Yassīn, "The Khanqah of Qawsūn"

⁽²⁾KAC Creswell, Muslim Architecture of Egypt, II, p. 187.

⁽³⁾See Part I, p. 41

it is more in the Anatolian tradition, and was probably erected at the period when Seljuk Anatolian influence was at its peak, that is around 1356-62, at the time of the construction of the Madrasa of Sultān Hasan.

As Professor J.M Rogers writes in his article "Seljuk influence on the Monuments of Cairo", before the erection of the Madrasa of Sultan Hasan, on which porch many features appear for the first time in Egypt,⁽¹⁾ only isolated motifs can be traced back to Seljuk decoration.⁽²⁾

Professor Rogers relates this Madrasa to two buildings in Sivas: the Cifte Minare Medrese and the Gök Medrese (1271-2).⁽³⁾ He believes that this imitation "is a revival performed by competent workers who worked from an outside knowledge and not a survival from the grand tradition of the XIIIth century in Anatolia."⁽⁴⁾ Thus in Cairo, at that period, there were craftsmen and/or an architect who was acquainted with the Seljuk Anatolian buildings of Sivas which he saw and tried to reproduce "in a more or less imaginative way features which remained in his memory".⁽⁵⁾ This man could also have seen the Medresses of Konya from which he adopted the plan of al-Sultāniyyā with its iwān flanked by two equal domes.

⁽¹⁾ J.M. Rogers, "Seljuk Influence on the Monuments of Cairo", Kunst des Orients (Steiner Verlag, 1970), p. 9.

⁽²⁾ Ibid., p. 20.

⁽³⁾ Ibid., p. 18-19.

⁽⁴⁾ Ibid., p. 19.

⁽⁵⁾ Ibid., p. 18-19.

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C. THE DECORATIVE FEATURES OF THE DOMES.

The two main decorative features on the Sultāniyyā complex are the square kufi band around the drum of the northern dome and the low carved floral motifs on various parts of the building. These features are seldom seen on Cairene monuments, they reflect a fashion which did not last very long. The fact that they appear here may thus be of importance for determining a stylistic dating of the complex.

-a- SQUARE KUFI :

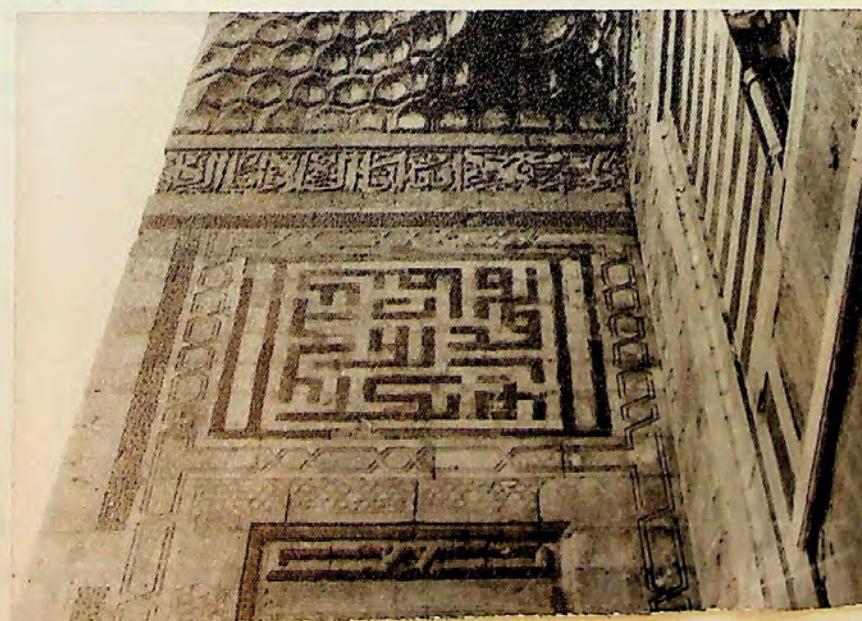
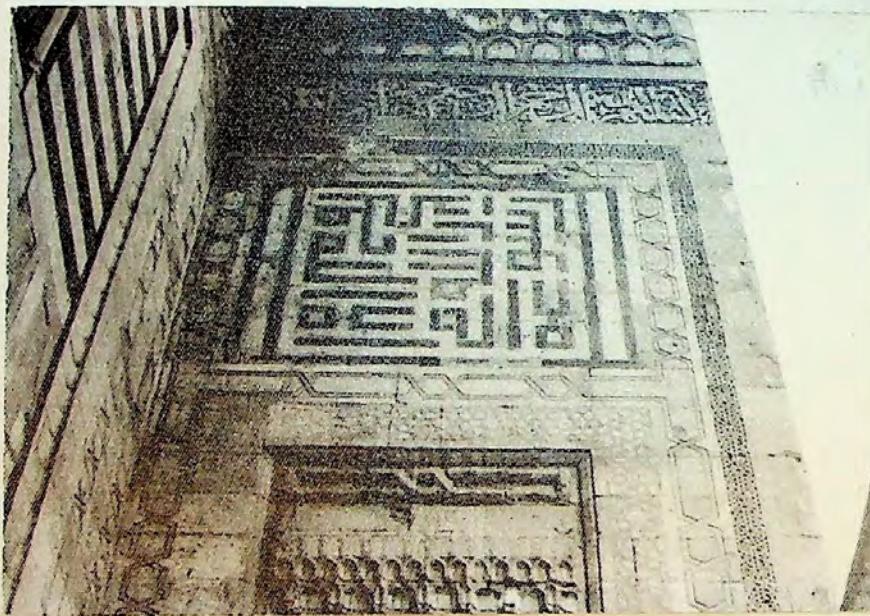
Square kufi is the least common of these decorative features; but this type of script was already known in Egypt. It appears for the first time in the Mausoleum of Qala'oun (1285) where the name of Mohamed is arranged in four ways to form a square, and the combination of two or three such squares forms rectangular panels. The same inscription appears next in a combination of two squares in the Mausoleum of Baybars al Gashenkir (1309-10), on two rectangular panels flanking the interior of the entrance to the tomb (see ill. 1 below). This is also seen in the Mausoleum of Zayn al Din Yusūf (1324-5) where two such panels flank the mihrāb (see ill. 2 below).



The first occurrence of a more elaborate text is on the two sides of the porch of the Madrasa of Sultān Ḥasan (1356-62) where above the side niches there is one square panel on each side, decorated with square kufi in red inlay over white marble. On the right, the square contains:

الله اولى بالحمد

and on the left the names of Muḥamed, Abu Bakr, ‘Umar, ‘Uthmān and ‘Alī (see illustrations below).



Square kufī carved into limestone is a rare feature in Cairene monuments. It can be seen in a pair of identical panels by the entrance porch of the Mosque of Bardabak (Umm al Ghulām or Ināl), 1460, with :

الله يحيى الله عز ; and at the base of the square shaft of the minaret of the Mosque of Abu'l Ḥilā (1485).

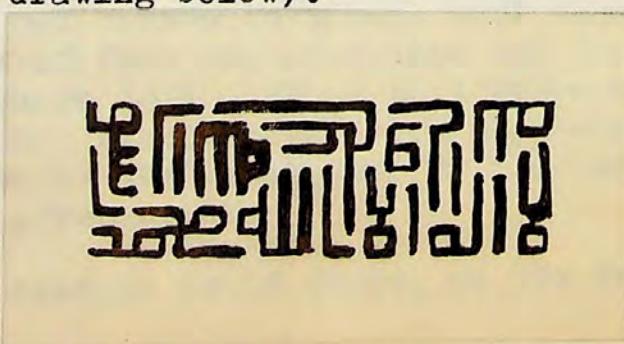
Nearly all the square kufī panels in Cairo are on a flat surface and in a framed square or rectangle. An exception to this is the square kufī inside the mihrāb of the Mosque of al-'Aynī (1411), which is neither framed, nor on a flat surface.⁽¹⁾

The other exception is the square kufī inscription on the Northern dome of al-Sultāniyyā which is carved on the curved surface of the cylindrical drum. The script is not set in a defined panel; each square is part of an uninterrupted band with no separations between the squares.

The decorative method of setting squares (or rectangles) on an uninterrupted band with no marked separation between each square is similar in technique to the decorative band around the portal of the Khanqah of Natanz (1316 or 1317)⁽²⁾ made in terra cotta and glazed brick where the verse:

لَهُ مُحَمَّدٌ رَسُولُ اللَّهِ وَلَهُ الْعَزَلُ

is set in a rectangle; the inscriptions extending along one long side up to Mūhammed, rasūl occupies the narrow side, the final lām redirecting the inscription along the upper long side (see drawing below).

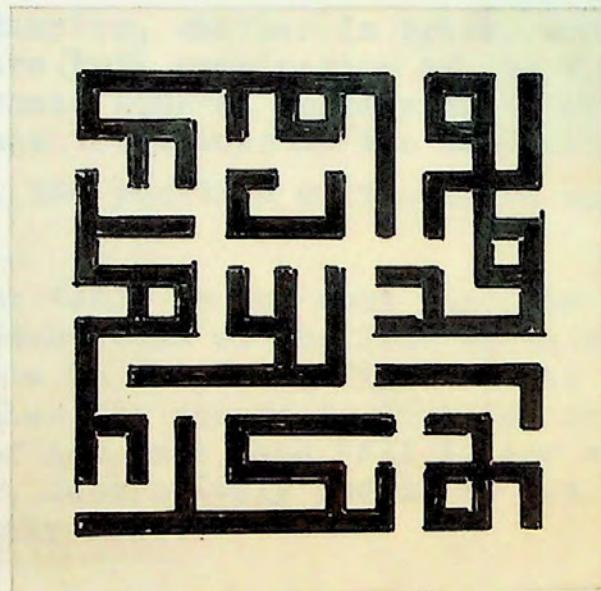


⁽¹⁾ Dr. Michael Meinecke believes it to be an 18th c. addition.

⁽²⁾ Hill and Grabar, Islamic Architecture and its Decoration, plates 264 & 265.

The same text in a similar arrangement appears in the Masjid-i-Jāmi' in Varamin (1325-6) on the iwān of the sanctuary.

In the square kufī decorative band around the base of the drum of the northern dome of al-Sultānīyyā, each square contains the combined names of Mūhammed, Abu Bakr, ^c Umar, ^c Uthmān and 'Alī (see drawing below).



This content is not common in square kufī decorative panels. A survey of Persian, Anatolian and Cairene occurrences of square kufī shows that there are only four other extant examples in which the name of the Prophet and those of the first four Caliphs are used in this type of arrangement.

The first dated example is in Sivas, on the back of

one of the minarets in the Cifte Minare (1271-2).
 The square panel is made of brick and turquoise, with
 the turquoise elements largely taken off.

The second example is on a wooden door in Beyşehir (c. 1300).⁽¹⁾
 The third is on the side of the portal of the Madrasa of
 Sultan Hasan in Cairo (1356-62).

The last example is in Karaman, in the Hatuniye Medrese
 (1382).⁽²⁾ The square panel is carved on stone and the script
 is in high relief relatively to the background.

In all these examples, whether in brick, wood, marble inlay or
 stone, the square kufi combination of the five names is
 set inside a framed square. These panels, although identical
 in content⁽⁴⁾ show variations in the decorative arrangements
 of the letters, the position of the names and the organization
 of the space.

Referring to the table on the next page, in which there is
 a graphic representation of the five known examples, there
 are two points to be made: the first one is that in the
 Anatolian examples the square is directed so as to start
 with the name of Abu Bakr, and 'Alī is the most important
 name, spacewise, decoratively and it is set facing the ground
 so as to be easily read.⁽⁵⁾

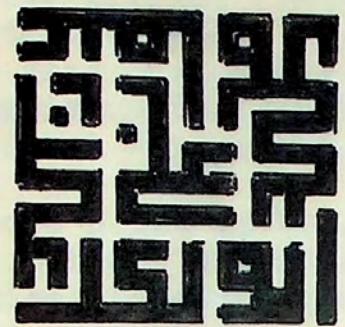
⁽¹⁾ Max Van Berchem, Materiaux pour un Corpus Inscriptionum
 Arabicarum - 3ème Partie - Asie Mineure, 1er fascicule
 (Le Caire: Imprimerie de l'Institut Français d'Archéologie
 Orientale, 1910), planche XXX.

⁽²⁾ Tamara Talbot Rice, The Seljuks in Asia Minor (London:
 Thames and Hudson, 1961), plate 66.

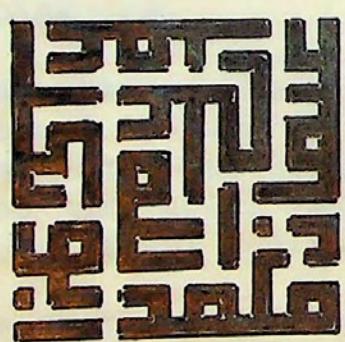
⁽³⁾ Hill and Grabar, Islamic Architecture and its Decoration, p. 440.

⁽⁴⁾ The Beyşehir panel also has the name of Allah, not
 included in the other panels.

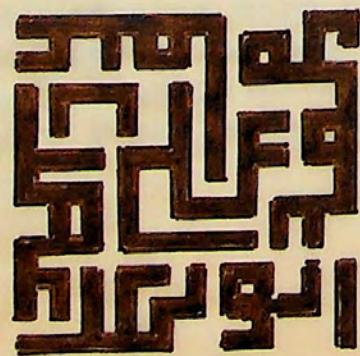
⁽⁵⁾ Except the Beyşehir example.



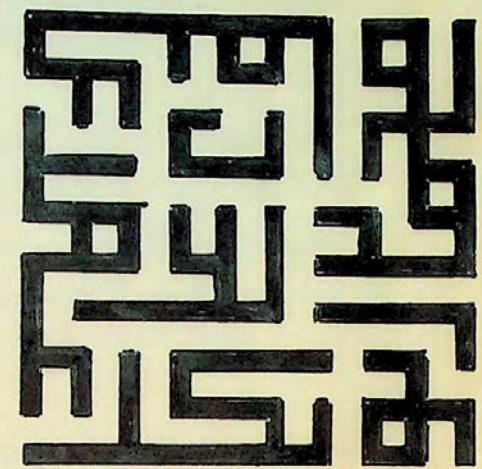
SIVAS



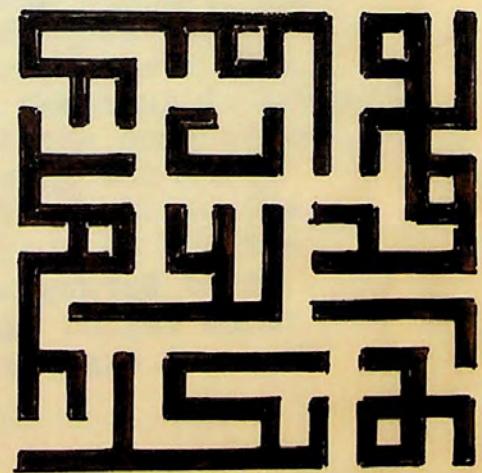
BEYSEHIR



KARAMAN



SULTĀN HASAN



AL-SULTĀNİYYĀ

In the two Cairene examples the square is directed so as to start with the name of Mohamad ; the name of 'Ali is read upside down, it faces the top. This lack of emphasis on the name of 'Ali is well in the line of the Sunni religious outlook of the Mamluks.

The second point to be made is the similarity between the two Cairene examples, especially remarkable as there are noticeable differences between each of the three Anatolian examples.

Although made in a different media (one in red marble inlay, the other carved into limestone), the arrangement and the design are identical. In both cases the reading starts at the upper right corner, with the name of Mohamed, then follows the same order of letters, which are drawn exactly in the same fashion and with the same thickness.

This identity in proportions, in the arrangement of the letters and the use of space would seem to indicate that one panel was used as a model for the other; or that the same model inspired two identical interpretations, but in different media.

Because of the fact that these two examples are the only ones in Cairene monuments with such content, and this in contrast to the variety of texts used in the numerous Cairene examples of square kufi panels from Qalaoun to the Turkish period; it is tempting to suggest that these two occurrences were made at the same period, if not by the same artist, at least using the same model. But the artist who carved the band around the drum showed even more cleverness, because he had the idea to repeat the square in an uninterrupted band, in the Persian fashion. This makes this unique band even more remarkable in Cairene Architecture.

-b- THE FOLIATE MOTIFS IN LOW RELIEF :

These occur on various parts of the Sultaniyya complex: on the exterior and interior drum of the northern dome, on the two roundels inside both domes, on the minaret and on the mihrab in the iwān.

There is not a single motif which is merely formed by a simple repetitive element, except on the thin band which frames the mihrab in the iwān and the rectangular plaque above it. All other designs, except those in the spandrels of the mihrab, show the superposition or interlacing of two systems, one is external and the other is the filling.

Sometimes there is an alternate role: a system may start as filling and end as a frame as for example in the vegetative motif around the exterior and interior drum of the northern dome.

The various floriate motifs on the different parts of the building share the same elements in different arrangements and compositions. These are the split leaf, a kind of trefoil often with tendril-like extensions, knots, calyx shapes, winged elements, stems and intersecting leaves and scrolls.

The patterns are upward growing and are symmetrically arranged relatively to a vertical axis. But there is seldom total identity between each side of the axis: some elements may be added on one side and absent on the other or carved in a different shape.

Although these designs are repetitive in principle, as around the inner and outer drum of the northern dome, a great deal of variation in the details exists and two sets of motifs, based on the same network, are rarely identical.

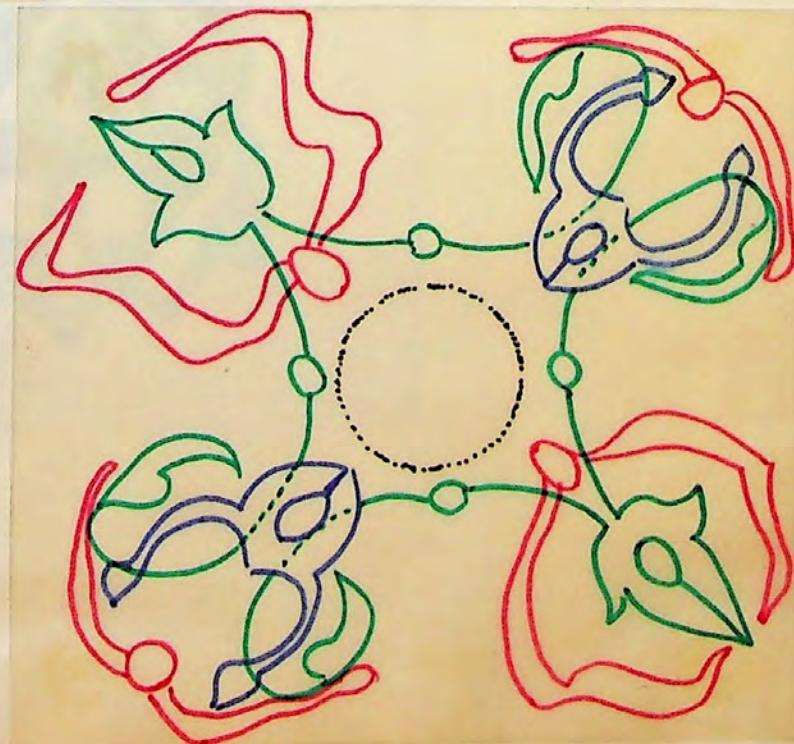
We now turn to a presentation and brief description of the different floriate motifs on the various parts of al-Sultaniyya.

(i) THE DOMES :

The central medallion of the inner dome of the northern mausoleum is decorated with two types of vegetative motifs which are closely related because a continuous stem develops once into a leaf and once into a trefeil. There are three ~~event~~ elements of each type which are arranged around a plain central roundel (see drawing and illustration below).



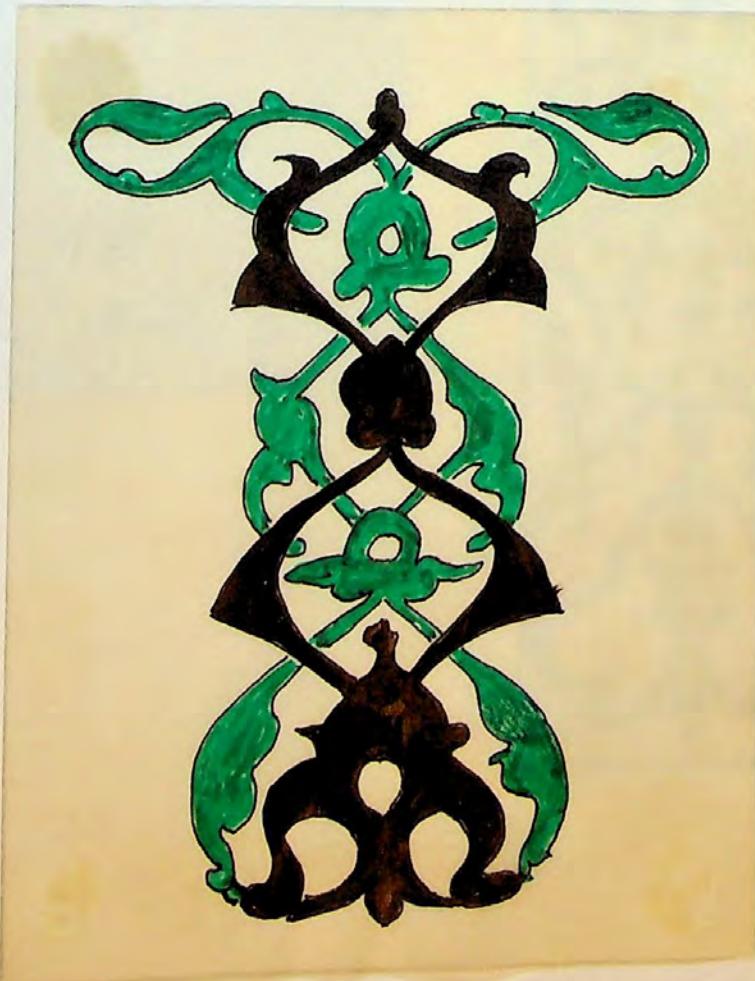
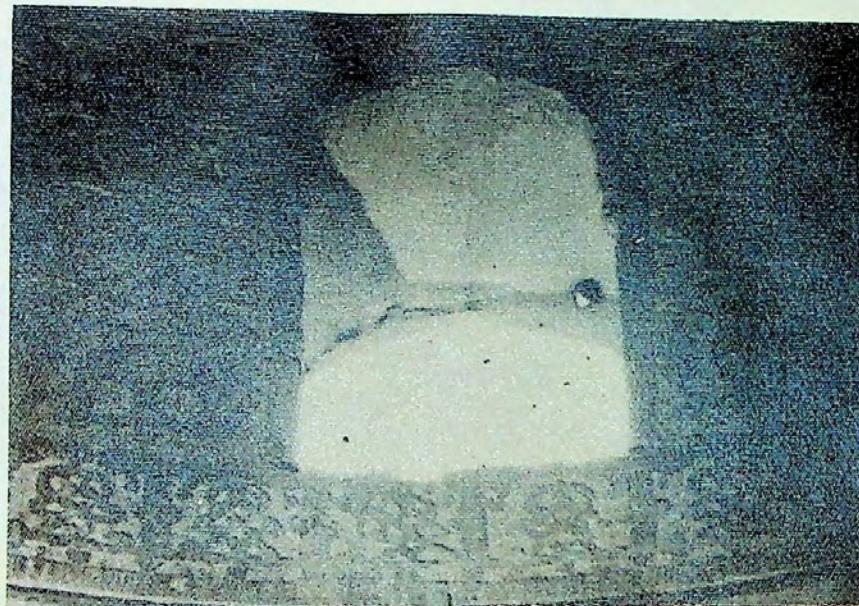
In the southern mausoleum, the central medallion is smaller in diameter. The floral motif is composed of four elements which are linked to each other by a continuous stem forming a curved sided lozenge with four knots in the centers. These motifs are on a diagonal arrangement around a plain central roundel; two motifs face each other while the other two are addorsed. Here, quite unusually, there are three distinct systems as indicated by the differences in coloring (see drawings below).



On the exterior of the northern dome, around the cylindrical drum in between the windows there is the most complex floriate design. This is a vertically symmetrical vegetative motif formed by two intertwined and superimposed upwards growing compositions. The second composition (in green) though on the same level of carving as the first one (in black) seems to be in a deeper background due to the interruption of its elements at all the crossing points of the two undulating outlines. (see drawing below).

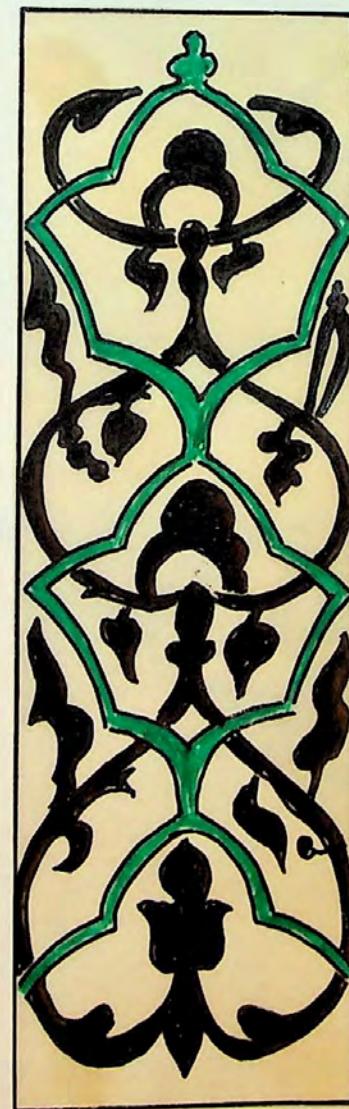


The foliate design inside the northern dome around the drum is also in two upward growing systems of a similar type (see drawing and illustration below).



(ii) THE MINARET:

The design on the blind niches of the first storey is in two definite systems. The framing design is regular and repetitive (the green one), the other one is upwards growing and variable (the black one). The design is a cut pattern, it could be extended indefinitely on the borders to form larger compositions. The lowest framing form is unfinished because cut by the border (see drawing and illustration below).



(iii) THE MIHRĀB IN THE IWĀN:

The designs on the two spandrels of the mihrāb niche are similar but not identical. In contrast to the other foliate motifs on the Sultāniyyā, each decorated corner is carved with a design in which interlacing scrolls and leafs grow and split without interruption in one closed system (see drawings and illustrations below).



These motifs are of importance as a clue for possible dating because the technique used reflects a temporary fashion.

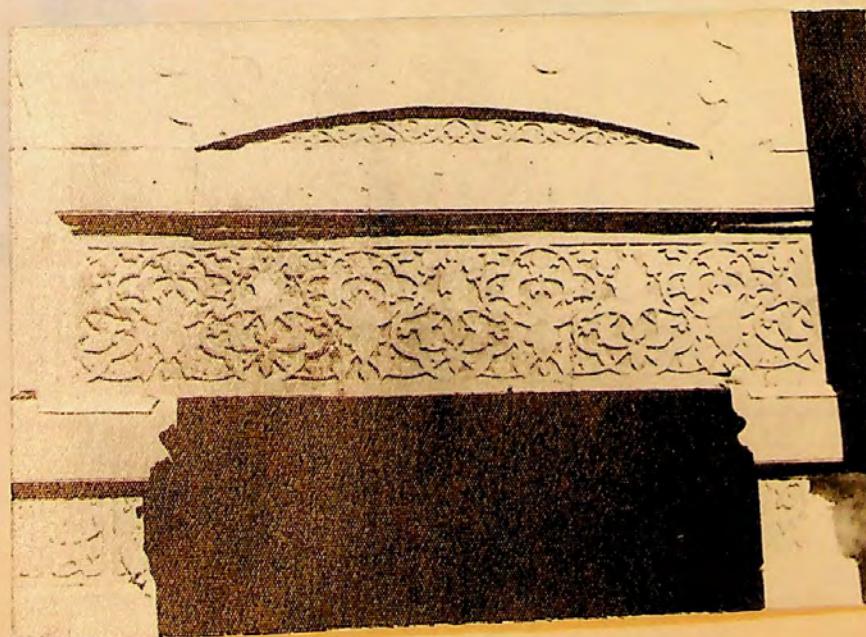
The background is carved in, the floral motifs are in slight relief and polished. The first occurrence of this technique can be found in the portal of the Mosque and Khanqah of Shaykhū and on the two minarets (1349 and 1355); on his Sabil (1354); on the porch of the Madrasa of Sirghitmish and on his cenotaph (1356); on a roundel on the exterior of the "Tankizbougha" mausoleum in the southern cemetery (1359).... The last example of this type of carving is around the drum of the Mausoleum of Yunūs al-Dawadār (1382).

A study of the designs shows that between 1349 and 1382 there is a marked evolution.

In the Shaykhū example, there are two different systems, both upward growing, but they do not intersect except in the lower central part. The main system (in black) occupies the largest part of the decorated area, the other system (in green) extends downwards and then grows irregularly on the borders. The two systems are not superimposed, they are merely juxtaposed (see drawing and ill. below).



From a comparison between the lintel of the entrance of the Madrasa of Sirghitmish (1356) and the κ lintel of the entrance of the Madrasa of Umm al-Sultān Sha'bān (1368-9), the difference in the carving technique and in the arrangement of the motifs appears. In the second example, the setting is definitely more rigid and the floral elements are less carefully drawn (see illustrations below).

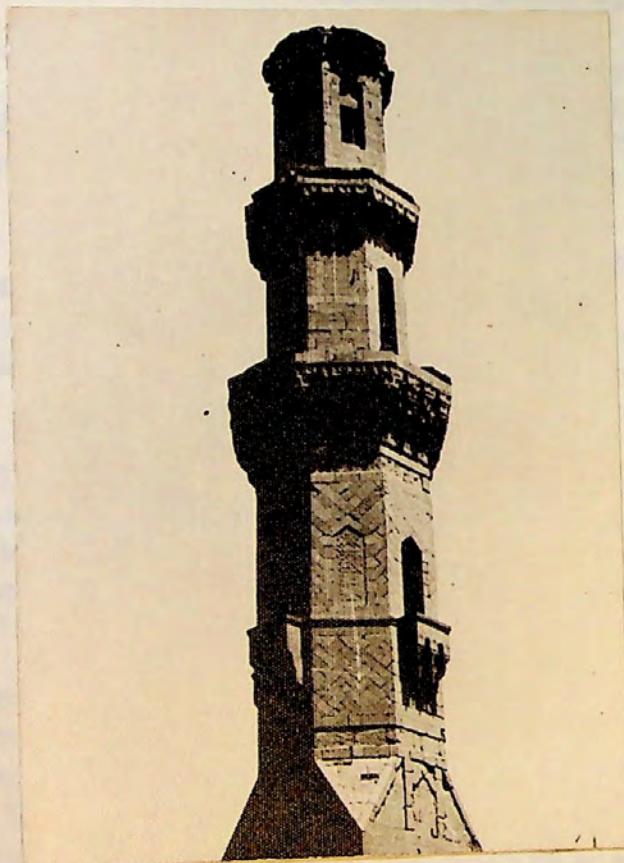


In the floriate motif around the drum of the Mausoleum of Yunūs al-Dawadār there is only one system which is stiff, the leafs and floral elements are simplified to a maximum, often simply outlined with little concern for the interlacing of scrolls to form complex elements. Moreover, the background is used as part of the design in clear contrast with the earlier examples (see drawing and illustration below).



Stylistically, the floriate motifs carved on the drum of the northern dome of al Sultaniyyā are to be placed in the earliest period. They are close to the Shaykhū example, but indicate a more developed form since the two systems are superimposed in their whole length and are of equal importance in the decorated space. Yet, these motifs keep the irregularity and free character of the designs of the earlier period which apparently ends before 1368-9. Thus they should be placed in the period between 1349 and 1368-9.

D. THE MINARET.



The minaret of al-Sultāniyyā is of a very fine, harmonious and well proportionate type, reflecting a fashion which was found only at a certain period of time namely between 1340 (the minaret of the Mosque of al-Maridānī) and 1373 (the minaret of the Mosque of Aldjāy al Yusufī).

Minarets of this period are very characteristic because the successive tiers are square/octagonal/octagonal; and the building technique favours the use of 'ablaq'.

The minaret of al-Sultāniyyā is an interesting one because its striking elements may give some clues to a possible date for the whole complex.

The minaret is of the type which Creswell calls the octagonal type. It starts with a square base which "shortens so much that only its bevelled off top corners show above the roof of the mosque, and the visible part of the minaret commences with an octagonal shaft".⁽¹⁾

The first dated example of an octagonal minaret is that of Balis,⁽²⁾ built in brick by al Malik al 'Adīl (brother of Salāh al Din) between 1193 and 1218 in a characteristically Mesopotamian style.⁽³⁾

The minaret of Altunbugha al Maridānī at Aleppo, built in 1318 is a Syrian version of the Mesopotamian type of octagonal minarets. It is scarcely surprising, therefore, that Altunbugha al Maridānī should have introduced into Cairene Mamlūk Architecture the fashion of the "square lower portion, hitherto so prominent reduced to a mere pier, reinforcing the boundary wall of the mosque".⁽⁴⁾ Creswell further emphasises that the "square shaft is really no shaft at all; it should rather be regarded as a re-inforcement of the wall of the mosque which otherwise would not be broad enough to take it".⁽⁵⁾

Examples of the square/octagonal/octagonal type in Cairo are:

- 1340: The minaret of the Mosque of al Maridānī
- 1349: The minaret of the Mosque of Mandjak al Yusufī
- 1349 and 1355: The minarets of the Mosque and Khanqah of Shaykhū.
- 1356: The minaret of the Madrasa of Sirghitmash.
- 1356-60: The SW minaret of the Madrasa of Sultān Hasan.
- 1360: The minaret of the Madrasa of Tatār al Hidjaziyyā.
- 1368-9: The minaret of the Madrasa of Umm al Sultān Sha'bān.

⁽¹⁾ KAC Creswell, "The Evolution of the Minaret with special reference to Egypt", reprinted from the Burlington Magazine (March, June: 1926), p.11.

⁽²⁾ Ibid., plate IV-B.

⁽³⁾ Ibid. p.14.

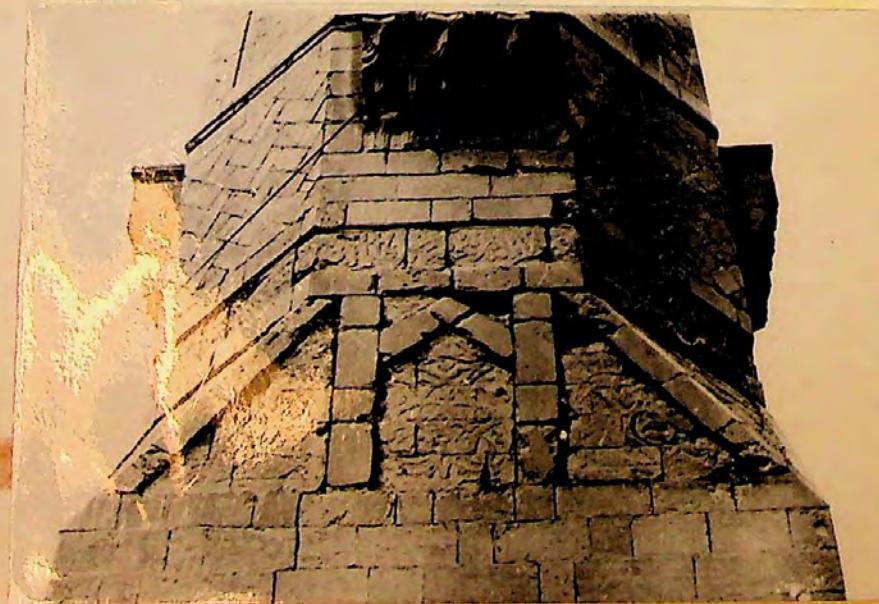
⁽⁴⁾ Ibid., p. 11.

⁽⁵⁾ Ibid., p.19.

The minaret of al-Sultāniyyā closely follows the pattern of a square shaft surmounted by octagonal storeys, with the corners of the square chamfered off to form the octagon. It thus fits into the Maridāni category, but with two variations. In the other examples, the minaret is enclosed within the structure of the building, either at the left of the portal (Maridāni, Sirghitmish) or above it (Shaykhū). In al-Sultāniyyā, the minaret was free standing on three sides and this may be the reason why the square shaft is a shaft and not a reinforcement of the wall and that it is proportionately so high. However, an even higher square shaft is that of the minaret of the Madrasa of Tatar al Hidjāziyyā⁽¹⁾ which is higher than the sum of the upper storeys, another example is the free standing minaret of the Mosque of Mandjak al Yusufi.⁽²⁾

The Transitional Zone:

The corners of the cube are bevelled off, forming four triangles. Each triangle is framed by an uninterrupted row of stones set as stretchers. The inner area is filled with horizontal courses of stones. The contrast between the two different ways of setting the stones is further emphasized by the use of two colors of stone, one for each type. This technique is called 'ablaq' (see ill. below).



⁽¹⁾ See Comité, Exercices 1925-6 (Publié 1933), plate VII.

⁽²⁾ See Wiet and Hautecœur, Les Mosquées ..., II, plate 112 (a).

On each of the four sides of the cube, the area is divided into a central keel-arched blind niche flanked by two equilateral triangles. These forms are inscribed within a trapeze.

What is particularly striking about this transitional zone is the stonework which is such as to emphasize architecturally each element. A feature which is unique - as far as I know - on the transitional zones of Cairo minarets, is the floral motifs in low relief which fill the triangles and keel-arched niches. In contrast, the triangles at the chamfered corners bear no floral decoration, the structure itself being sufficiently decorative.

A similar technique and division of space is used in the transitional zone of the minaret of the Madrasa of Emir Sirghitmish (see illustration below).



The triangles at the four corners are emphasized by stones of a different colour set as stretchers on their periphery. Each of the four sides of the square shaft forms a trapezium composed of three triangles, two right way up flanking a central inverted one. Each triangle is emphasized by one row of stones of red colour set as stretchers. The stone filling of each triangle is of plain horizontal coursing with no trace of floral carving.

Minarets with bevelled off corners turning a square shaft into an octagon are:

1340: al Maridani

1349: the minaret of the Mosque of Mandjak al Yusufī

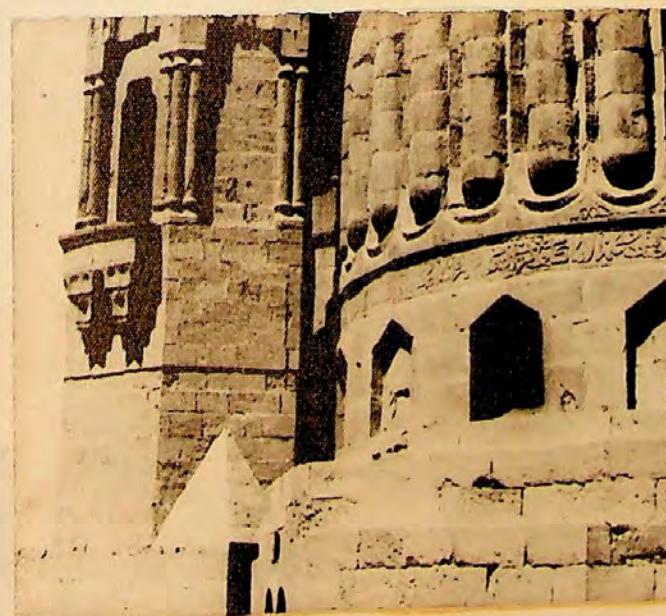
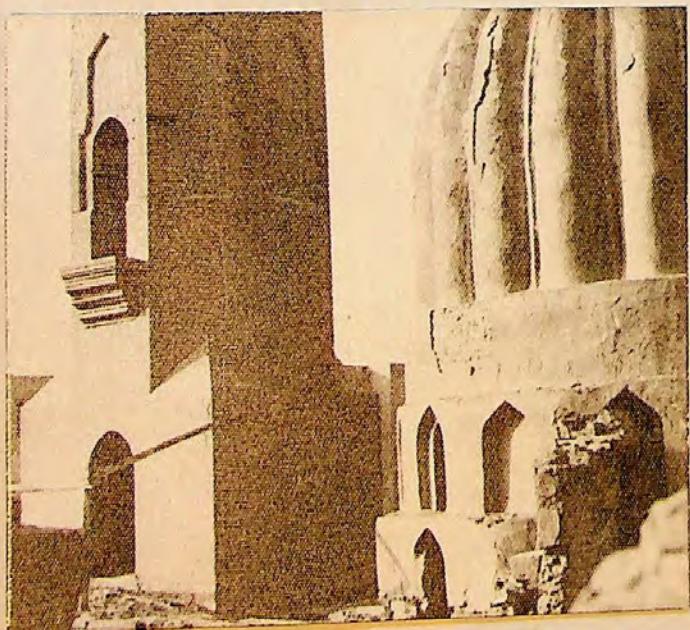
1355: the minaret of the Khanqah of Shaykhū

1356: the minaret of the Madrasa of Sirghitmish

1356-60: the south west minaret of the Madrasa of Sultān Hasan

1360: the minaret of the Madrasa of Tatār al Hidjāziyyā.

The minaret of the Mosque of Shaykhū (1349) and that of the Madrasa of Umm al-Sultān Sha'bān (1368-9) do not have bevelled off corners; but on the contrary, the corners are emphasized by four prisms which effect the transition (see illustrations below).

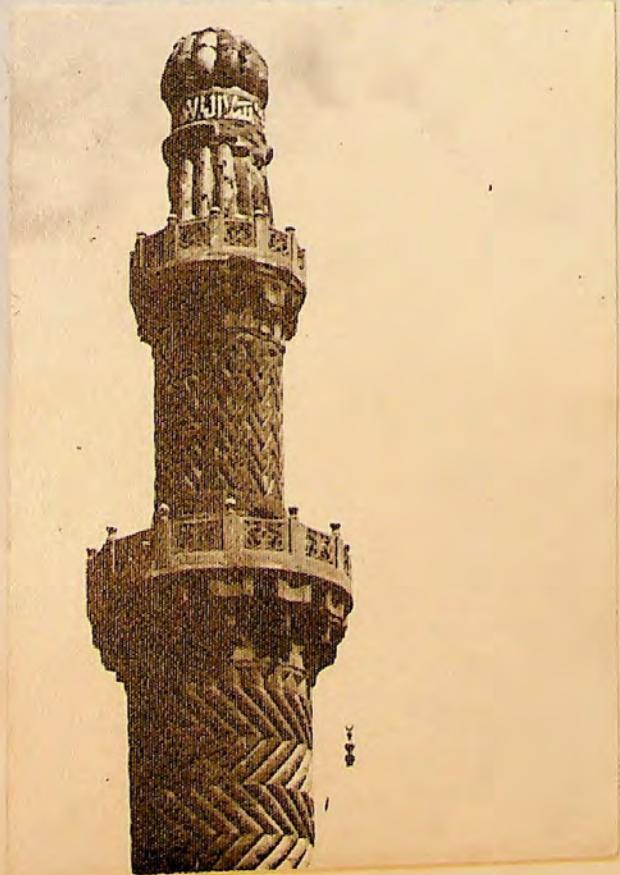


The First Storey:

This octagonal shaft is divided into two zones a little more than a third of the way up by a small moulding which recalls that below the lower door of the minaret. This moulding goes all around the octagon, taking in the four small rectangular balconies.

On each of the eight faces of the minaret shaft there are keel arches alternately blind and framing windows. The four open windows have small rectangular balconies below them. These balconies are supported by \vee corbels composed of four tiers of stalactites, the third of these tiers being composed of dripping stalactites.

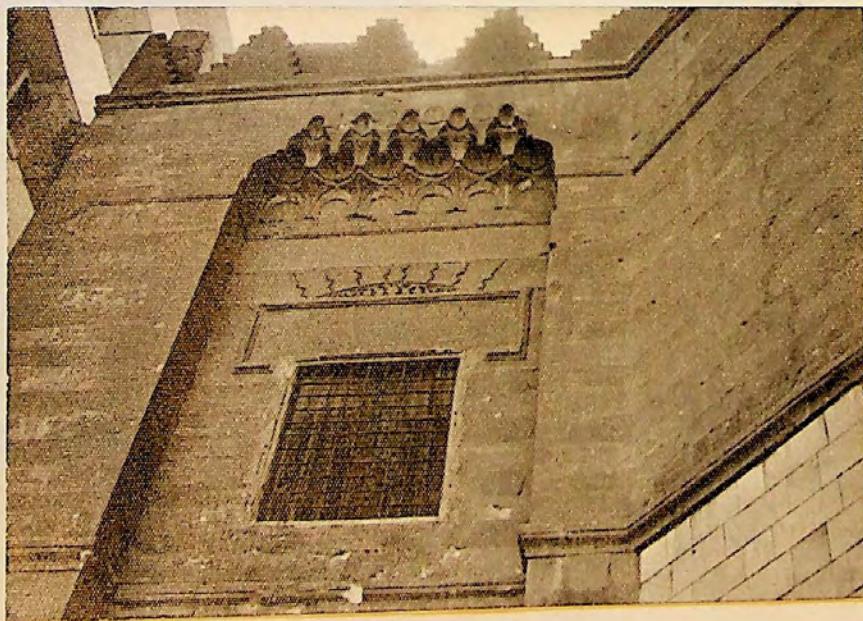
Stalactite cornices first appear on the minaret of al Guyūshī (1085) at the top of the lower larger square shaft of the minaret. The first timid attempt to introduce dripping stalactites on the cornices of minarets is on the upper cornice of the northern minaret of the Mosque of al-Nāṣir Mohamed ibn Qalaoun at the Citadel (completed in 1335), a cylindrical minaret with overall raised chevron patterns set horizontally on the first storey and vertically on the second one. On the upper cornice, each flat niche is flanked on either side by two deep niches, the point where they meet being marked by a "drip". (See ill. below).



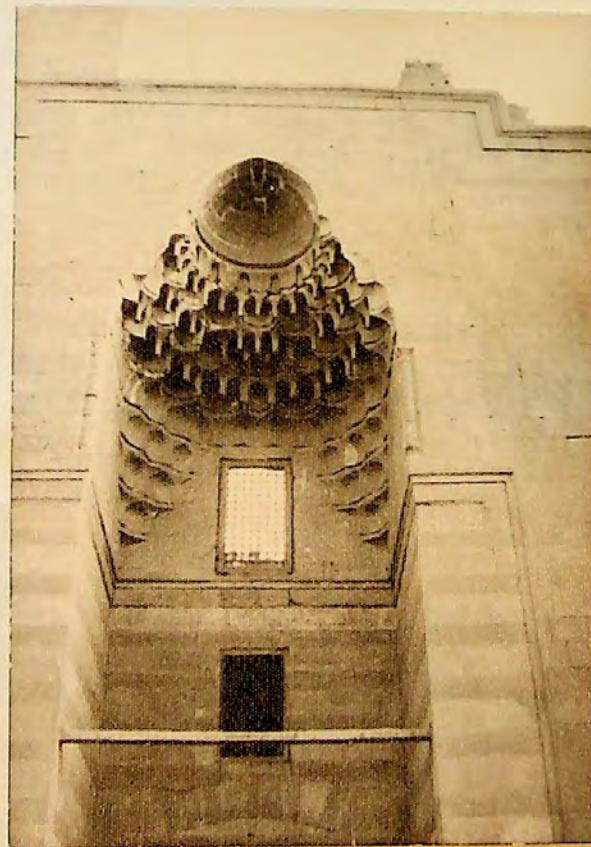
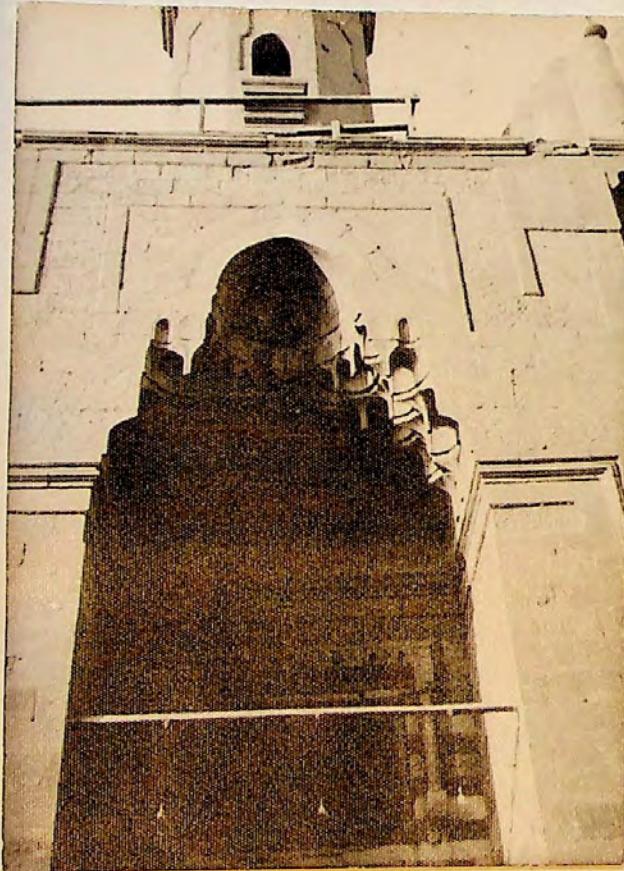
The next occurrence which is more elaborate and closer to our example is the stalactite corbel below the balconies on the minaret of the mosque of al Maridānī (1340), where there are compositions incorporating dripping stalactites once on the third tier and once on the fourth. This introduces an undulating movement of very fine esthetic effect.

From that time on, dripping stalactites on cornices of minarets became an established tradition in the Mamlūk architecture of Cairo.

It is worth recalling that the first occurrence of dripping stalactites in Cairo is at the apex of the blind niche over the entrance door of the complex of Salār and Sangar al Gawlī (1303-4). This niche is crowned by stalactites in three tiers with drips on the second tier (see illustration below).

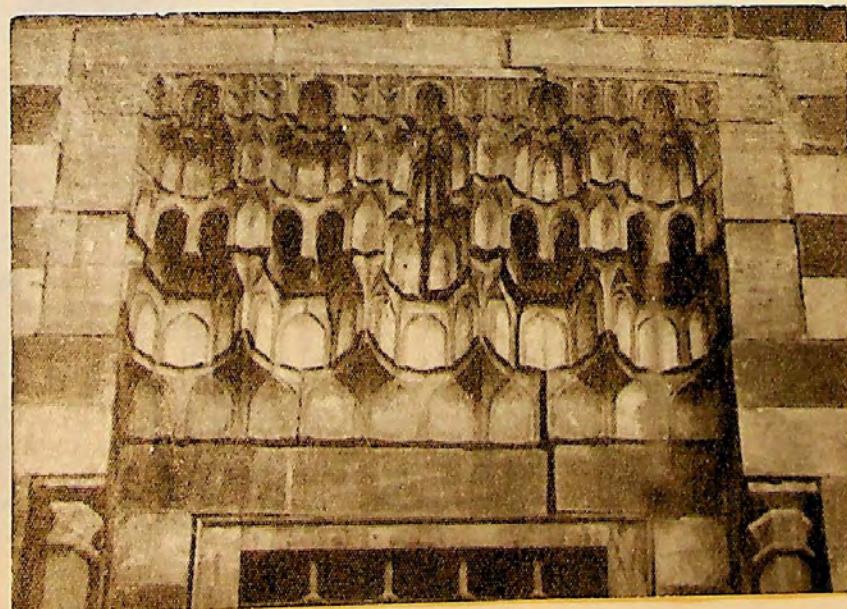
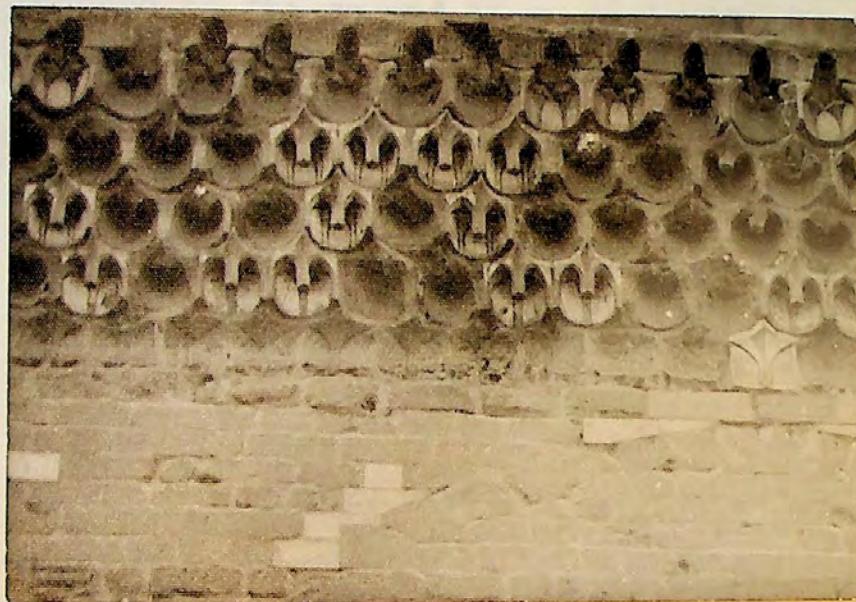


Starting on the porch of the Mosque of Ulmās (1329-30), dripping stalactites on entrance portals become more generalized in use as on the porch of the Mosque of Beshtāk (1336); on that of the Palace of the Emir Qawsūn (1337); on that of the Mosque and Khanqah of Shaykhū (1349 and 1355); and on the portal of the Madrasa of Sirghitmish (1356) - see ill. (1) for Khanqah of Shaykhū and (2) for Madrasa of Sirghitmish -



But the most extraordinary use of dripping stalactites however, is on the semi domes supporting the cupola of the entrance porch, as well as on the upper cornice

crowning the whole facade and the blind niches over the entrance of the Madrasa of Sultān Ḥasan (c. 1356- 62). These stalactites are the closest to the Sultānīyyā ones, in composition, arrangement, shape and decoration (see illustrations below).



The stalactite corbels of the four rectangular balconies on the minaret of al-Sultāniyyā are composed of two types of stalactite compositions.

First Type: Those on the first tier consist of three shallow niches with between them, two deep ones which are fluted. These deep niches become much wider and rounded on the second tier, enclosing four half niches grouped together, forming a "deep composition". On the same tier, at the borders, framing these "deep compositions" are two small half niches, divided vertically in the middle, which have fluted conches. The drips appear on the third tier, they drip from a vertical projection interiorly decorated with stars in between the drips (see illustration below).



Second Type: Those on the first tier consist of three shallow niches with between them two fluted ones. These form two "deep compositions" on the second tier; and there is a complete niche with fluted conch in the middle in between them. Just below this niche, there is another one, also fluted and shell-like, and there are two more half niches on the borders. On the third tier there are only two drips and below the small niche on the fourth tier, there is a six sided fan-shaped pendant enclosing a pointed niche inside which there is a smaller one. Each of the side elements end in four sided fan-shaped pendants (see illustration below).



The mere fact that there are two types of stalactite compositions on these small balconies indicate that there is a great degree of inventiveness on the part of the artist, a deeply anchored desire to avoid monotony and a fruitful imagination.

A few of the elements in these compositions, both in structure and in decoration recall similar or identical structures and decoration on the two domed construction.
 (1) The "deep compositions": identical ones can be seen on the upper part of the blind niches on the rear facade, with the exception of the drips on the third tier (see ill. below)



A deep composition also exists in the stalactite pendentive of the northern dome.⁽¹⁾

(2) On the second group of stalactite balconies there are two central fluted niches which are set vertically above each other. It is not without significance that this extremely rare feature is found both on the minaret and in the stalactite pendentive of the northern dome.⁽²⁾

(3) The fluted niches on the two types of balconies can be seen on (a) the rear facade , (b) the upper tier of decorated niches which run as a frieze all around the drum above the transitional zone of the northern dome and (c) on the carved niches of the mihrāb in the qibla iwān.⁽³⁾

⁽¹⁾See Part I, p. 31

⁽²⁾See Part I, p. 33

⁽³⁾See Part I, p. 14(1)

At the same level as those balconies and alternating with them, there are four keel-shaped blind windows. They are covered by an overall repeating floral pattern in low carved relief (see illustration below).



This type of decoration on minarets is quite rare; to my knowledge it can only be seen on two other examples in Cairo: the minaret of the Mosque of Shaykhū (1349) and that of his Khanqah (1355). On these two minarets, the floral motifs are not restricted to the windows, but cover their spandrels also. (See ill. below).

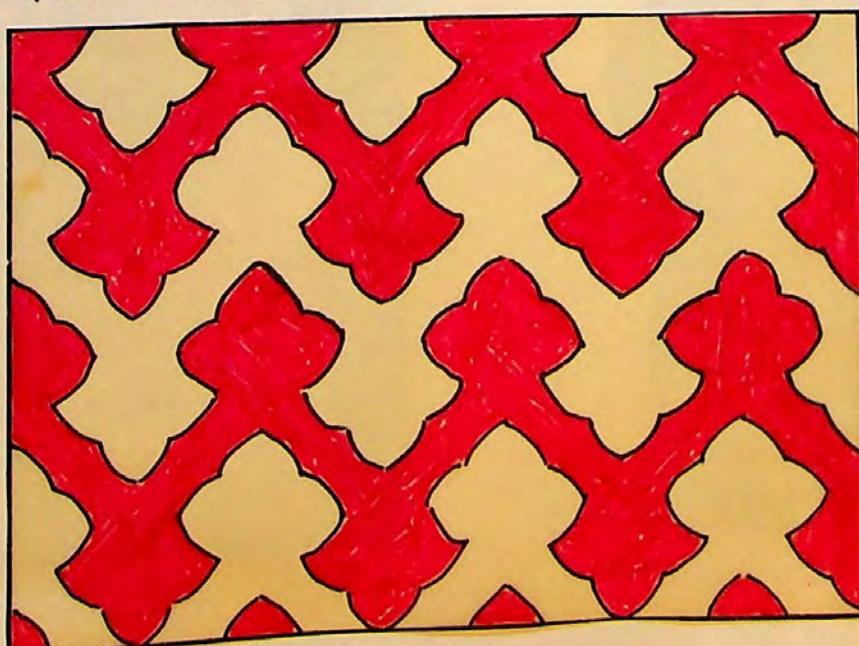


A rather similar treatment of the spandrels of the arches can be seen on the second storey of the minaret of al-Sultāniyya.

The stonework of this first storey is remarkable. The whole area, except the four lower parts below the small balconies is composed of blocks set diagonally at 90°, forming an all over chevron pattern. The horizontal rows are alternately of reddish and buff stone in the 'ablaq' fashion. The stones are set like simple joggled voussoirs, fitting into each other with a small area in between the stones for "free movement". This technique of setting the stones is relatively rare on minarets.

It appears for the first time on the second storeys of the two minarets of Shaykhū (1349 and 1355); then on the second storey of the minaret of the Madrasa of Sirghitmish (1356); and the last occurrence is on the first octagonal storey of the minaret of the Madrasa of Tatār al Ḥidjāziyyā (1360). (See Plate on next page).

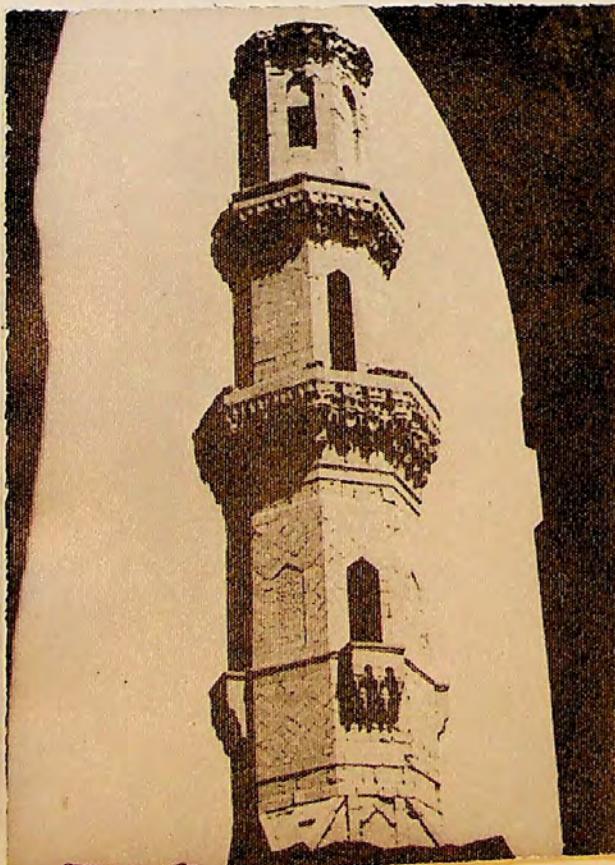
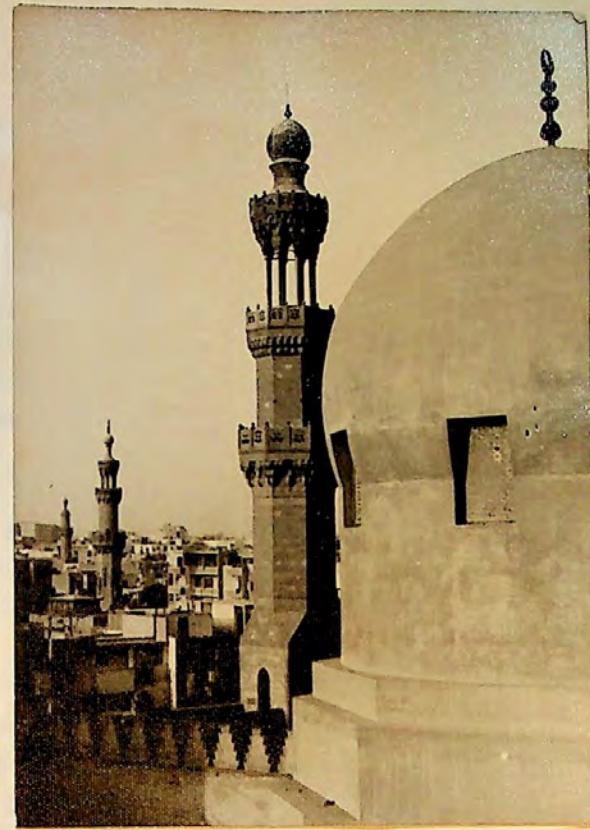
The last occurrence of the 'ablaq' technique on a minaret is on the cylindrical second storey of that of the Mosque of Aldjāy al Yusufi (1373). But here the design is much more complex. It consists of fleur-de-lys raised on a high concave sided foot. The repetition of this unit results in a reverse trefoil unit alternating with the fleur-de-lys. These are set in three horizontal rows symmetrically disposed so that the positive of one row creates the negative of the next one (see drawing below).



Shay khū



ṣirshītmish



al-SULTĀNIYYA



TATĀR al-Hidjāzīyya

Although the basic network is a chevron pattern, and the technique is 'ablaq', this design is so elaborate that it induces one to believe that it is a later, and possibly the latest occurrence.

We may thus conclude that the technique of the use of 'ablaq' on minarets to form simple chevron patterns is a characteristic fashion which did not last very long. We have a starting point with the Shaykhū minaret (1349) and a final occurrence on the minaret of Tatar al Ḥidjāziyyā (1360). On that basis, the Sultāniyyā minaret, which is in fact one of the most successful examples of the application of such a technique, may thus be placed somewhere between 1349 and 1360.

The Second Storey:

The second storey is an octagonal section set in between the first and second stalactite cornices. This section, of plain horizontal stone coursing, is pierced by an elongated keel-arched door on the SE side of the minaret.

Below each window, a continuous horizontal band of stones of a different colour links them together since they are not linked at the apexes. The spandrels of these arches are carved with floral designs in low relief. The use of 'ablaq' and the floral motifs are very close in style to those in a similar position on the minarets of Shaykhū.

The finest decorative feature is the two stalactite balconies which are very carefully planned and executed. The stalactite corbels which support these balconies consist of four tiers of stalactites and a fifth tier of fan-shaped pendants which are directly applied to the surface of the minaret shaft in much lower relief.

All the striking elements of the corbelling of the small balconies of the first storey are met again with on these two cornices: the shallow niches, the "deep compositions", the vertical disposition of niches, the shell-like fluted niches, the drips and the fan-shaped pendants. But here the elements are multiplied in a greater complexity

to form twentyfour units of deep/drip compositions on the first balcony and twelve on the second.

The Third Storey:

Although the third storey is at present the last part of the minaret, there was something above the third stalactite cornice, since the minaret is broken. The stone coursing is in regular horizontal stone work. It is pierced by six windows alternately half opened and blind. The blind windows have a two centered arch form with a flat surface of plain horizontal coursing which seems to be undecorated. The three half opened windows have segmented or broken-headed arches "which are infrequent in Seljuk Art, but quite common in Mongol work".⁽¹⁾ They are not in common use in Cairene Architecture.

⁽¹⁾D.Wilber, The Architecture of Islamic Iran: The Ilkhanid Period, p. 69.

CONCLUSION

The careful study of the architectural elements permits to set a middle of the XIV th century dating for the Sultāniyyā.

The double domes of al-Sultāniyyā are ribbed ones made of stone. The only dated example goes back to 1356 and is to be found in brick in the Mausoleum of Sighitmish. The double dome in brick is a Persian import. The double domes of the Sultāniyyā seem to have been an imitation of the Persian technique and certain structural elements indicate that it was an experimental attempt, unique of its kind, which inspired no other imitators.

The very fact that only two such examples can be found in Cairene architecture makes me believe that the Sultāniyyā double domes closely follow the building of the Sirghitmish dome.

As demonstrated in Part III (A), the ribbed domes in stone show an inventiveness that places them in the period extending from 1346 to 1382.

Inspired by the XIII th century Medreses of Konya, the general lay out of al-Sultāniyyā is characteristic of the Anatolian influence which is strongest in Egypt from 1356 to 1362.

The numerous parallels, made in the course of this paper, between al-Sultāniyyā and the Madrasa of Sultān Hasan demonstrate a preponderant Anatolian influence. For instance the mihrāb in the iwān of al-Sultāniyyā was directly inspired from the side niches of the porch of the Madrasa of Sultān Hasan, which were adapted from those of the Gök Medrese in Sivas. The square kufī band around the drum of the northern dome are of the same content and design as the square panel above the left niche and similar to that of the Cifte Minare also in Sivas.

The minaret is the part of the building which can be dated most precisely because it is a very characteristic one: an octagonal minaret with the use of 'ablaq' in simple chevron patterns. There are only four other examples in Cairo, starting in 1349 and ending in 1360. The minaret of al-Sultāniyyā should thus be placed in this period, as it is one of the best example of this rare and short lived fashion.

Moreover, this minaret is the only one beside the two minarets of Shaykhū (1349 and 1355) which is carved with foliate motifs in low relief. I believe this minaret to be slightly later, as the floral motifs are more developed.

As for the floral motifs, I have shown in Part III, C (b) that they reflect the fashion of carving and motif types which start in 1349 and end before 1368-9. By that time the naturalistic and non symmetrical features are lost into stiffness.

Having thus all those landmarks regarding domes, lay out, floral motifs and minaret we may date the construction of al-Sultāniyyā between 1356 and 1360.

The architect and artist who constructed al-Sultāniyyā had the genius to adapt some small scale motifs already present in Egypt and to enlarge them into a greater and imposing scale. As for example his use of the half domical vault which existed in Cairo since 1087, but on a small scale, which he used to roof the iwān in between the two domes. This is the only iwān thus vaulted in Cairo.

His other point of genius was to combine the ribs and the stalactites which existed in a different arrangement on the mabkharas; to incorporate the stalactite within the rib to form its ending and its corbelling of a very fine esthetic effect. This idea was copied in a simplified form on the dome of the Mausoleum of Yunūs al-Dawadār (1382); and it is tempting indeed to suggest that this

was the inspiration for the so called 'Samarkandi' domes.

Even if one considers the dome of Turkestan City (1397) as the earliest "Timurid type", one should keep in mind that at that time the dome of Yunūs al-Dawadār already existed, and that no more ribbed domes in brick or stone of this "envergure" were built in Cairo.

There were relationships between Egypt and the Timurid empire; V.V. Barthold writes that Alike-Kükeltash, who lived over ninety and died in 1440, was the former tutor of Shah Rukh. He is the one who built the new cathedral mosque of Ulug Beg and a number of other constructions and "his activities extended beyond the limits of the Timurid possessions. He bought land and developed agriculture as far away as Asia Minor and Egypt".⁽¹⁾

The many similarities in the unusual forms which occur only on the Sultanīyyā and the Madrasa of Sultān Hasan bear the mark of one and the same mind, a mind fully aware of what was done in every part of the Islamic world of architecture. This brilliant architect picked up his ideas in Anatolia, Persia and Syria and he blended them with local features to produce his own original creations.

⁽¹⁾V.V. Barthold, Four Studies on the History of Central Asia, vol.II : Ulug Beg (Leiden: E.J.Brill, 1963), p.123-4.

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